CHAPTER 4 – ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION AND OVERVIEW

This chapter assesses environmental consequences or impacts that would result from the implementation of the proposed project or the alternatives described in Chapter 2. These analyses consider direct, indirect, and cumulative impacts of the proposed project and alternatives, including both short-term impacts during construction and decommissioning, and long-term impacts during operations. This chapter also identifies mitigation measures (MM) to address adverse impacts and summarizes the residual and unavoidable adverse impacts on a resource-by-resource basis. The scope of the impact analyses presented in this chapter is commensurate with the level of detail for the alternatives provided in Chapter 2, Proposed Action and Alternatives, and the availability and/or quality of data necessary to assess impacts. Baseline conditions for assessing the potential environmental impacts are described in Chapter 3.

4.1.1 Methodology

The methodology for this assessment conforms with the guidance found in the following sections of the Council on Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act (NEPA): 40 Code of Federal Regulation (CFR) Section 1502.24, Methodology and Scientific Accuracy; 40 CFR Section 1508.7, Cumulative Impact; and 40 CFR Section 1508.8, Effects. The CEQ regulations require agencies to "rigorously explore and objectively evaluate" the impacts of the alternatives.

As discussed in Chapter 1, the project is subject to environmental review under the NEPA. Because this project will require close cooperation with Riverside County, this EIS was written to comply with NEPA and to satisfy CEQA requirements for those project components that require entitlements from state and local agencies, in accordance with CEQA Guidelines, Public Resources Code Section 21000 et seq., including the Guidelines for Implementation of the CEQA, Title 14 California Code of Regulations section 15000 et seq. CEQA considerations including CEQA Significance Criteria, based on the significance criteria listed in the CEQA Environmental Checklist, Appendix G of the CEQA Guidelines, and CEQA Significance Determination have been included at the end each Section as required. There is no requirement that Federal agencies determine significance when analyzing impacts in an EIS; rather, the BLM must take a "hard look" at the impacts of the proposed project and its alternatives and determine whether they are adverse. Therefore, any determination of significance in this document is a determination under CEQA, not NEPA.

In addition, because certain aspects of the project description are not narrowly defined at this stage of project development and a range of potential configurations exist (e.g., types of panels that will ultimately be selected and procured, location of the operations and maintenance building, exact placement of transmission poles, and other details), a conservative scenario of environmental effects for each resource is evaluated throughout this chapter. This approach serves to ensure an estimate that is unlikely to be exceeded of adverse environmental effects for the proposed project and alternatives, as actual project effects may be somewhat reduced upon final engineering and configuration of the DHSP.

Effects on Joshua Tree National Park are evaluated throughout this chapter and are also compiled into a single section, Section 4.17, Special Designations, for ease of evaluation of effects on the Park.

4.1.2 Types of Effects

The potential impacts from those actions that would have direct, indirect, and cumulative effects were considered for each resource. The terms "effect" and "impact" as used in this document are synonymous and could be beneficial or detrimental.

Direct effects are caused by the action and occur at the same time and place as the action; indirect effects are caused by the action and occur later in time or further in distance, but are still reasonably foreseeable (40 CFR 1508.8). Cumulative impacts are those effects resulting from the incremental impacts of an action when combined with other past, present, and reasonably foreseeable future actions (regardless of which agency or person undertakes such actions) (40 CFR 1508.7). Cumulative impacts could result from individually insignificant but collectively significant actions taking place over a period of time. Short-term impacts occur only for a short time after implementation of a management action; for example, construction noise impacts from construction activities would be considered short term in nature. By contrast, long-term effects occur for an extended period after implementation of a management action; for example, operational noise during facility operations would be a long-term impact, as it would last for as long as the facility is in operation.

As required by Section 102(2)(C) of NEPA, this chapter includes the environmental impacts of each of the alternatives, including any adverse environmental effects which cannot be avoided, the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented. This Chapter uses section 1502.16 of the CEQ regulations as the scientific and analytic basis for the comparisons of alternatives.

4.1.3 Mitigation Measures Included in the Analysis

Section 1508.20 of the CEQ regulations for implementing NEPA defines mitigation as:

(a) Avoiding the impact altogether by not taking a certain action or parts of an action;

(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation;

(c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and

(e) Compensating for the impact by replacing or providing substitute resources or environments.

For impacts identified in the following resource sections, mitigation measures have been developed that would be implemented during all appropriate phases of the project from initial ground breaking to operations, and through closure and decommissioning. The mitigation measures include a combination of the following:

- Applicant Measures (AMs) that have been proposed by the Applicant, which are reflected as design features of the proposed project and alternatives;
- Regulatory requirements of other federal, State, and local agencies; and
- Additional BLM-proposed mitigation measures, standard ROW grant terms and conditions, and best management practices (BMPs).

These requirements are generically referred to as "mitigation measures" throughout this EIS. Because these mitigation measures are derived from a variety of sources, many also are required, and their implementation regulated, by the various agencies.

Many of the mitigation measures are required by agencies other than the BLM, and while their implementation will be enforced by those other agencies, the BLM will incorporate compliance with those requirements as part of its approval for the Proposed Action. For instance, any Endangered Species Act (ESA) Section 7 mitigation measures of the USFWS will be included in the Record of Decision (ROD). Similarly, the National Historic Preservation Act (NHPA) Section 106 mitigation measures will also be included in the ROD. The Applicant will be required by the ROD and the ROW grant to comply with the requirements of those other agencies (43 CFR 2805.12(a) and (i)(6)). Any non-compliance with implementation of these other federal or State requirements may affect the approval status of the ROD and ROW grant.

In some instances, the BLM identified potential impacts to public land resources that would not otherwise be the subject of mitigation measures required by these other agencies. In these instances, individual mitigation measures have been developed by the BLM for the proposed project and alternatives. If a ROW is granted, these mitigation measures will be incorporated, as applicable, into the ROW grant and, if so, will be monitored and managed by the BLM. In addition, standard terms and conditions for approval of the use of public land will be identified in the ROD and incorporated into the proposed ROW grant and therefore will be enforced by the BLM as part of any ROW grant approved for the project.

4.1.4 Cumulative Scenario Approach

This EIS analyzes the cumulative impact of the construction, operation and maintenance, closure and decommissioning of the elements of the proposed project and alternatives, taking into account the effects in common with other past, present, and reasonably foreseeable future actions. The cumulative effects analysis highlights past actions that are closely related either in time or space (i.e., temporally or in geographic proximity) to the proposed project, present actions that are ongoing at the same time this EIS was being prepared; and reasonably foreseeable future actions, including those for which there are existing decisions, funding, formal proposals, or which are highly probable, based on known opportunities or trends.

The intensity, or severity, of the cumulative impacts analysis considers the magnitude, geographic extent, duration, and frequency of the effects (CEQ 1997). The magnitude of the effect reflects the relative size or amount of the effect; the geographic extent considers how widespread the effect may be; and the duration and frequency refer to whether the effect is a one-time event, intermittent, or chronic (CEQ 1997). Varying degrees of information exist about projects within the cumulative scenario. Therefore, for resource areas where quantitative information was available, a quantitative analysis is provided; otherwise, a qualitative analysis is provided. If the

proposed project and alternatives would have no direct or indirect effects on a resource, the EIS does not analyze potential cumulative effects on that resource.

Tables 4.1-1 and 4.1-2 (located at the end of this section) provide a comprehensive listing of all existing and foreseeable projects that could contribute to a cumulative impact on the environment. Projects listed include renewable energy projects located on BLM-administered lands and/or private lands and identified in the BLM First-in-Line Pending Solar Applications: California, other BLM actions/activities identified on the BLM website or Geocommunicator website, and projects identified by local governments, such as Riverside County and the Energy Commission. Tables 4.1-1 and 4.1-2 present the project name and owner, location, type, status, total acres, and a brief description of each project, to the extent available. Most of the projects listed in Table 4.1-1 have been, are being, or would be required to undergo their own independent environmental review under NEPA, CEQA, or both, as applicable. Figure 4.1-1 shows the location of each of the projects listed in Table 4.1-1 using a corresponding identification number. Those projects where the identification number shown as an asterisk (*) are outside the area covered by Figure 4.1-1.

For the proposed project, the cumulative scenario for each issue area includes all or a subsection of the projects identified in Table 4.1-1 and 4.1-2. Table 4.1-3 identifies each resource's cumulative analysis geographic extent, the known or reasonably foreseeable actions within the geographic extent, and potential cumulative effects.

With the exception of climate change, which is a global issue, the BLM has identified the California Desert District as the largest area within which cumulative effects should be assessed. However, the specific area of cumulative effect varies by resource. For each resource, the geographic scope of analysis is based on the natural boundaries of the resource affected, rather than jurisdictional boundaries, as appropriate. The geographic scope of cumulative effects often extends beyond the scope of the direct effects, but not beyond the scope of the direct and indirect effects of the proposed project and alternatives. Table 4.1-2 identifies the relevant geographic scope for each discipline's analysis of cumulative impacts.

In addition, each project in a region would have its own implementation schedule, which may or may not coincide or overlap with the proposed project's schedule. This is a consideration for short-term impacts from the project. However, to be conservative, the cumulative analysis assumes that all projects in the cumulative scenario are built and operating during the operating lifetime of the proposed project and alternatives.

Renewable Energy Projects Included in the Cumulative Scenario

A large number of renewable energy projects have been proposed on BLM-administered land, State land, and private land in California. As of July 2012, there were 279 renewable projects totaling 26,000 MW proposed in California in various stages of the environmental review process or under construction (CEC 2011).

Large renewable projects now described in applications to the BLM and on private land are competing for utility Power Purchase Agreements, which will allow utilities to meet State-required Renewable Portfolio Standards. Not all of the projects listed will complete the environmental review process, and not all projects will be funded and constructed. It is unlikely that all of these projects will be constructed for the following reasons:

- Not all developers will develop the detailed information necessary to meet BLM standards. Preparing complete and detailed plans of development (POD) is difficult, and completing the required NEPA and CEQA documents is time-consuming and costly.
- As part of approval by the appropriate Lead Agency under NEPA and/or CEQA (generally the BLM and/or local jurisdiction), all regulatory permits must be obtained by the applicant or the prescriptions required by the regulatory authorities incorporated into the Lead Agency's license, permit or ROW grant. The large size of these projects may result in permitting challenges related to endangered species, mitigation measures or requirements, and other issues.
- Also after project approval, construction financing must be obtained (if it has not been obtained earlier in the process). The availability of financing will be dependent on the status of competing projects, the laws and regulations related to renewable project investment, and the time required for obtaining permits for individual projects.

While it is acknowledged that a portion of the renewable projects listed in Table 4.1-2 may not get funded or built, the EIS did not eliminate any of the renewable projects listed in the BLM First-in-Line Pending Solar Applications: California or those identified by the Energy Commission Renewable Energy Action Team unless the project had been formally rejected by the BLM. The EIS did not consider an actual wind farm at the Eagle Mountain Wind Project foreseeable because the feasibility of a wind project at the location has not been demonstrated. As such, only the Met Towers were included in the cumulative scenario.

Table 4.1-1. Existing Projects Along The I-10 Corridor (Eastern Riverside County)

ID on Figure 4.1-1	Project Name; Agency ID	Location	Ownership	Status	Acres	Project Description
1	Interstate 10	Linear interstate highway running from Santa Monica to Blythe (in California)	Caltrans	Existing	N/A	Interstate 10 (I-10) is a major east-west route for trucks delivering goods to and from California. It is a four-lane divided highway in the project region.
2	Chuckwalla Valley State Prison	19025 Wiley's Well Rd. Blythe, CA	CA Dept. of Corrections & Rehabilitation	Existing	1,080	State prison providing long-term housing and services for male felons classified as medium and low-medium custody inmates jointly located on 1,720 acres of state-owned property. APN 879040006, 008, 012, 027, 028, 029, 030
3	Ironwood State Prison	19005 Wiley's Well Rd. Blythe, CA	CA Dept. of Corrections & Rehabilitation	Existing	640	ISP jointly occupies with Chuckwalla Valley State Prison 1,720 acres of state-owned property, of which ISP encompasses 640 acres. The prison complex occupies approximately 350 acres with the remaining acreage used for erosion control, drainage ditches, and catch basins. APNs 879-040-001, 004, 009, 010, 011, 015, 016, 017, 018, 019, 020
4	Devers-Palo Verde No. 1 Transmission Line	From Palo Verde (Arizona) to Devers Substation	SCE	Existing	N/A	Existing 500 kV transmission line parallel to I-10 from Arizona to the SCE Devers Substation, near Palm Springs. DPV1 will loop into the approved Midpoint Substation (now called Colorado River Substation), which will be located 10 miles southwest of Blythe.
5	Blythe Energy Project	City of Blythe, north of I-10, 7 miles west of the CA/AZ border	Blythe Energy, LLC	Existing	76	520 MW combined-cycle natural gas-fired electric-generating facility. Project is connected to the Buck Substation owned by WAPA.
6	West-wide Section 368 Energy Corridors	Riverside County, parallel to DPV corridor	BLM, DOE, U.S. Forest Service	Approved by BLM and U.S. Forest Service	N/A	Designation of corridors on federal land in the 11 western states, including California, for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities (energy corridors). One of the corridors runs along the southern portion of Riverside County.
7	Eagle Mountain Pumping Plant	Eagle Mountain Road, west of Desert Center	Metropolitan Water District of Southern California	Existing		144-foot pumping plant that is part of the Metropolitan Water District of Southern California's facilities. APNs 807-150-007, 807-150-009, 807-150-010

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ID on Figure 4.1-1	Project Name; Agency ID	Location	Ownership	Status	Acres	Project Description
8	Recreational Opportunities	Eastern Riverside County	BLM	Existing	N/A	BLM has numerous recreational opportunities on lands in eastern Riverside County along the I-10 corridor including the Corn Spring's Campground, Wiley's Well Campground, Coon Hollow Campground, and Midland Long-Term Visitor Area.
9	Kaiser Mine	Eagle Mountain, north of Desert Center	Kaiser Ventures, Inc.	Existing	N/A	Kaiser Steel mined iron ore at Kaiser Mine in Eagle Mountain and provided much of the Pacific Coast steel in the 1950s. Mining project also included the Eagle Mountain Railroad, 51 miles long. Imported steel captured market share in the 1960s and 1970s and primary steelmaking closed in the 1980s. 701380031
10	Blythe Energy Project Transmission Line	From the Blythe Energy Project (Blythe, CA) to Julian Hinds Substation	Blythe Energy, LLC	Existing	N/A	Transmission line modifications including upgrades to Buck Substation, approximately 67.4 miles of new 230 kV transmission line between Buck Substation and Julian Hinds Substation, upgrades to the Julian Hinds Substation, installation of 6.7 miles of new 230 kV transmission line between Buck Substation and SCE's DPV 500 kV transmission line.
11	Blythe PV Project	Blythe	First Solar	Existing, CPUC approved project terms of a 20-year power purchase agreement for sale of 21 MW	200	21 MW solar photovoltaic project located on 200 acres. Project was constructed by First Solar and sold to NRG Energy.
12	Chuckwalla Valley Raceway	Desert Center Airport (no longer a community airport)	Developer Matt Johnson	Approved by County of Riverside	400	A 5.8-mile race track located on 400 acres of land that used to belong to Riverside County and was used as the Desert Center Airport. APNs 811-142-016, 811-142-006. Small private airstrip kept as part of project. Construction completed in March 2010.
13	SMP00199	Approximately 4 miles north of Blythe on Midland Road	Shepwells	Active mine[1]		Surface Mining Permit for Sand and Gravel. 6 acres disturbed as of 2011. Mine ID: 91-33-0080
14	SMP00102	10 Miles W of Midland Rd. & 17 Miles N of Blythe	Pacific Gypsum Products	Active mine[1]		Surface Mining Permit for Standard Gypsum Mine. 17 acres disturbed as of 2010. Mine ID: 91-33-0076

Table 4.1-2. Foreseeable Projects along the I-10 Corridor (Eastern Riverside County)

ID on Figure 4.1-1	Project Name; Agency ID	Location	Ownership	Status	Acres	Project Description
A	Four Commercial Projects	Blythe, CA	Various	Approved	N/A	Four commercial projects have been approved by the Blythe Planning Department including the Agate Road Boat & RV Storage, Riverway Ranch Specific Plan, Subway Restaurant and Motel, and Agate Senior Housing Development.
B	Intake Shell	Blythe, CA		Under Construction	N/A	Reconstruction of a Shell facility located at Intake & Hobson Way. Demolition occurred in 2008, reconstruction planned for 2009-2010.
C	Fifteen residential developments	Blythe, CA	Various	Approved or Under Construction	N/A	Twelve residential development projects have been approved by the Blythe Planning Department including: Vista Palo Verde (83 Single Family Residential [SFR]), Van Weelden (184 SFR), Sonora South (43 SFR), Ranchette Estates (20 SFR), Irvine Assets (107 SFR), Chanslor Village (79 SFR), St. Joseph's Investments (69 SFR), Edgewater Lane (SFR), The Chanslor Place Phase IV (57 SFR), Cottonwood Meadows (103 Attached SFR), Palo Verde Oasis Phase IV (29 SFR). Three residential development projects have been approved and are under construction including: The Chanslor Phase II & III (78 SFR), River Estate at Hidden Beaches, Mesa Bluffs Villas (26 Attached SFR).
D	Devers-Palo Verde No. 2 Transmission Line Project	From the Midpoint Substation to Devers Substation (CA-only portion)	SCE	CPUC Petition to Modify Request to construct CA-only portion was approved by CPUC 11/2009. DPV2 to Arizona was originally approved by CPUC in 6/2007. BLM ROD was issued July, 2011.	N/A	New 500 kV transmission line parallel to the existing Devers-Palo Verde Transmission Line from Midpoint Substation, approximately 10 miles southwest of Blythe, to the SCE Devers Substation, near Palm Springs. The ROW for the 500 kV transmission line would be adjacent to the existing DPV ROW and would require an additional 130 feet of ROW on federal and State land and at least 130 feet of ROW on private land and Indian Reservation land.

Table 4.1-2. Foreseeable Projects along the I-10 Corridor (Eastern Riverside County)

ID on Figure 4.1-1	Project Name; Agency ID	Location	Ownership	Status	Acres	Project Description
E	Colorado River Substation Expansion	10 miles southwest of Blythe	SCE	Approved by CPUC 11/2009. Application for expansion filed with CPUC in 11/2010. Project was approved July, 2011.	44	The substation was approved by the CPUC (as the "Midpoint Substation") but is proposed to be expanded as a 500/230 kV substation and would be constructed in an area approximately 1,000 feet by 1,900 feet, permanently disturbing approximately 90 acres. The 500 kV switching station would include buses, circuit breakers, and disconnect switches. The switchyard would be equipped with 108-foot-high dead-end structures. Outdoor night lighting would be designed to illuminate the switchrack when manually switched on. The Final Supplemental EIR was published by the CPUC in April 2011.
F	Desert Southwest Transmission Line	118 miles primarily parallel to DPV	Imperial Irrigation District	Final EIR/EIS prepared in 2005. Approved by the BLM in 2006.	N/A	New, approximately 118-mile 500 kV transmission line from a new substation/switching station near the Blythe Energy Project to the existing Devers Substation located approximately 10 miles north of Palm Springs, California.
G	Blythe Energy Project II	Blythe, CA. Near the Blythe Airport and I-10	Blythe Energy, LLC	Approved by CEC in December 2005	30 acres (located on Blythe Energy Project land)	520 MW combined-cycle power plant located entirely within the Blythe Energy Project site boundary. Blythe Energy Project II will interconnect with the Buck Substation constructed by WAPA as part of the Blythe Energy Project. Project is designed on 30 acres of a 76-acre site.
H	Eagle Mountain Pumped Storage Project	Eagle Mountain iron ore mine, north of Desert Center	Eagle Crest Energy Company	License application filed with FERC in June 2009. EIR published in mid- 2010; FERC Final EIS published in January 2012.	2,221	1,300 MW pumped storage project designed to store off-peak energy to use during peak hours. The captured off-peak energy would be used to pump water to an upper reservoir. When the water is released to a lower reservoir through an underground electrical generating facility the stored energy would be added into the Southwestern grid during "high demand peak" times, primarily weekdays. Estimated water use is 8,100 AFY for the first four-year start-up period and replacement water is 1,763 AFY thereafter.
I	Palen Solar Energy Project	North of I-10, 10 miles east of Desert Center	Solar Millennium LLC/Chevron Energy	Approved by CEC in December 2010. Final EIS published in May 2011.	5,200	500 MW solar trough project on 5,200 acres. Facility would consist of two 250 MW plants disturbing approximately 3,870 acres. Project would include interconnection to the SCE Red Bluff Substation. Project would use an estimated 300 AFY of water.

Table 4.1-2. Foreseeable Projects along the I-10 Corridor (Eastern Riverside County)

ID on Figure 4.1-1	Project Name; Agency ID	Location	Ownership	Status	Acres	Project Description
J	Blythe Solar Power Project	North of I-10, immediately north of the Blythe Airport	Solar Millennium LLC/Chevron Energy	Approved by CEC and BLM in 2010; under construction.	7,540	1,000 MW solar trough facility on 7,540 acres. On August 18, 2011, Palo Verde Solar I, LLC, through Solar Trust of America, announced their intent to change the solar technology from concentrated solar power (CSP) to photovoltaic (PV). BLM ordered a temporary suspension of all surface disturbing construction and requested that the applicant file an amended SF299 form to request the change in the project. Once such request is processed, BLM may lift the suspension.
K	McCoy Soleil Project	10 miles northwest of Blythe	EDF	Plan of Development in to Palm Springs BLM.	1,959	300 MW solar power tower project located on 1,959 acres. Project would require a 14-mile transmission line to proposed SCE Colorado Substation south of I-10. Would use 575-600 AFY of water.
L	NextEra (FPL) McCoy	13 miles northwest of Blythe, CA,	McCoy Solar, LLC (NextEra FPL)	Draft EIS published May 2012	8,177	Up to 750 MW solar PV project on 7,700 acres of BLM land, 477 acres of private land. The project would require a 16-mile gen-tie, with a right-of-way width of 100 feet, which will require about 200 acres of public and private lands. The proposed 20-acre switch yard will be located adjacent to and connect into Southern California Edison's Colorado River Substation.
M	Genesis Solar Energy Project	North of I-10, 25 miles west of Blythe and 27 miles east of Desert Center	NextEra (FPL)	Approved by CEC and BLM in 2010; under construction	1,950	250 MW solar trough project on 1,950 acres north of the Ford Dry Lake. Project includes six-mile natural gas pipeline and a 5.5-mile gen-tie line to the Blythe Energy Center to Julian Hinds Transmission Line, then travel east on shared transmission poles to the Colorado River Substation.
N	Silverado Power I, II, III	West of SR177, North of I-10	Silverado Power, LLC	Under EDA review	2,680	Three solar PV projects.
O	Rice Solar Energy Project	Rice Valley, Eastern Riverside County	Rice Solar Energy, LLC (Solar Reserve, LLC)	Approved by CEC; Final EIS published in August 2011; construction to begin in 2011	1,410	150 MW solar power tower project with liquid salt storage. Project is located on approximately 1,410 acres and includes a power tower approximately 650 feet tall and a 10-mile long interconnection with the WAPA Parker-Blythe transmission line.
P	Blythe Airport Solar I Project (U.S. Solar Holdings)	Blythe Airport	County of Riverside	City of Blythe approved the project in November, 2009, Approved by the County of Riverside in 2010	640	100 MW solar photovoltaic project located on 640 acres of Blythe airport land.

Table 4.1-2. Foreseeable Projects along the I-10 Corridor (Eastern Riverside County)

ID on Figure 4.1-1	Project Name; Agency ID	Location	Ownership	Status	Acres	Project Description
Q	Desert Quartzite	South of I-10, 8 miles southwest of Blythe	First Solar (previously OptiSolar)	POD in to BLM	7,724	600 MW solar photovoltaic project located on 7,724 acres. Adjacent to DPV transmission line and SCE Colorado Substation. Approximately 27 AF of water would be used during construction and 3.8 AFY during operation.
R	Desert Sunlight Project	6 miles north of Desert Center	First Solar	Project approved in August 2011.	4,144	550 MW photovoltaic project on 4,144 acres of BLM land. Would require a 12-mile transmission line to planned Red Bluff Substation.
S	SCE Red Bluff Substation	South of I-10 at Desert Center	SCE	Project approved in July, 2011.	90	A proposed new 500/220 kilovolt (kV) substation, two new parallel 500 kV transmission lines of about 2,500 to 3,500 feet each to loop the substation into the existing Devers-Palo Verde (DPV) 500 kV transmission line (DVPV1), and two parallel 500 kV transmission lines of about 2,500 to 3,500 feet each to loop the new substation into the proposed Devers-Colorado River 500 kV transmission line (DPV2) into the new substation with another two parallel lines of about 2,500 to 3,500 feet each.
T	Desert Center 50	Desert Center	U.S. Solar Holdings	Under Review by County of Riverside	452	A planned 49.5 MW fixed flat panel photovoltaic solar power plant on APN: 810-190-004; 811-231-001, 003, 004 and 008; 810-110-001 and 006
U	Sol Orchard	Desert Center	Sol Orchard	Approved by County of Riverside in 2010	10	A planned 1.5 MW fixed flat panel photovoltaic solar power plant north of I-10, east of SR177, west of Desert Center Airport.
V	Blythe Mesa Solar I Blythe Mesa Solar II	Blythe, CA	Renewable Resources Group	Under Review by County of Riverside.	3,700 + 3,250	Solar I is a planned 485 MW solar PV project and Solar II is a planned 486-acre solar PV project on private land in Blythe, California
W	Blythe Solar Power Generation Station 1, LLC	Blythe, CA	Southwestern Solar Power, LLC (Amonix, Inc.)	Approved. Estimated online date 6/2013	29.4	A planned 4.76 MW solar PV facility. The proposal includes the construction of sixty-nine PV panels that stand approximately 50 feet tall and 72 feet wide, a 200-square-foot equipment building, and a twenty foot perimeter fire access road. – APN: 812-340-002

Table 4.1-2. Foreseeable Projects along the I-10 Corridor (Eastern Riverside County)

ID on Figure 4.1-1	Project Name; Agency ID	Location	Ownership	Status	Acres	Project Description
X	Eagle Mountain Landfill Project	Eagle Mountain, North of Desert Center	Mine Reclamation Corporation and Kaiser Eagle Mountain, Inc.	U.S. Court of Appeals for the Ninth Circuit issued its opinion regarding the EIS for the project in 11/09 and ruled that the land exchange for the project was not properly approved by the administrative agency. Kaiser's Mine and Reclamation is considering all available options.	~ 3,500	The project proposed to be developed on a portion of the Kaiser Eagle Mountain Mine in Riverside County, California. The proposed project comprises a Class III nonhazardous municipal solid waste landfill and the renovation and repopulation of Eagle Mountain Townsite. The proposal by the proponent includes a land exchange and application for rights-of-way with the Bureau of Land Management and a Specific Plan, General Plan Amendment, Change of Zone, Development Agreement, Revised Permit to Reclamation Plan, and Tentative Tract Map with the County. The Eagle Mountain landfill project proposes to accept up to 20,000 tons of non-hazardous solid waste per day for 50 years.
Y	Wiley's Well Communication Tower (part of the Public Safety Enterprise Communication System)	East of Wiley's Well Road, just south of I-10	Riverside County	Final EIR for the Public Safety Enterprise Communication System published in August 2008.	N/A	The Public Safety Enterprise Communication project is the expansion of Riverside County's fire and law enforcement agencies approximately 20 communication sites to provide voice and data transmission capabilities to personnel in the field.
Z	Eagle Mountain Wind Project Met Towers	South of Eagle Mountain, north of Joshua Tree National Park	LH Renewable LLC	Application for wind testing pending	3,500	Met towers for wind testing. Wind development project is not foreseeable at this time as the feasibility of a wind project at this location has not been demonstrated.
AA	Rio Mesa Solar Electric Generating Facility	13 miles southwest of Blythe	Rio Mesa Solar I, II, III LLC (BrightSource)	Application Filed with Energy Commission October, 2011	5,750 acres	Three 250-megawatt (MW) (nominal) solar concentration thermal power plants. Each plant will utilize a solar power boiler, located on top of a concrete tower (approximately 750-feet tall), surrounded by heliostat (mirror) fields (approximately 85,000 per plant) which focus solar energy on the boiler. Auxiliary boilers will be used to operate in parallel with the solar field during partial load conditions and when additional power is needed.
BB	Gestamp Asetym Solar -- FTA 2011-06 EDA	Northwest of Blythe	Gestamp Asetym Solar	Under EDA review.	320	37 MW solar power plant.

Table 4.1-2. Foreseeable Projects along the I-10 Corridor (Eastern Riverside County)

ID on Figure 4.1-1	Project Name; Agency ID	Location	Ownership	Status	Acres	Project Description
CC	Gypsum Solar; CACA 051950	Approximately 7 miles north of Blythe, CA	Ridgeline Energy LLC	BLM application pending. Application date March, 2010.	3,000	50-100 MW solar PV or concentrated PV energy facility. The project would include a solar panel array, a maintenance building, an administration building, a raw water storage tank, a demineralized water tank, a potable water tank, and a 230 kV or lower transmission line and substation.
DD	CUP03677	East of Blythe Solar Project, South of Gypsum Solar project.	N/A	Conditional Use Permit applied for September, 2011.	N/A	500 MW solar PV generating facility.
Additional Projects Outside Cumulative Figure Boundaries						
EE	Solar Power Inc.	Palm Springs Area	Wintec Energy	Approved by the County of Riverside in 2010	37	A planned 2.35 MW AC photovoltaic solar power generation system.
FF	Paradise Valley "New Town" Development	Approximately 30 miles west of Desert Center (7 miles east of the city of Coachella)	Glorious Land Company	Notice of Preparation (NOP) of an EIR published in December 2005. Still under environmental review.	6,397	Company proposes to develop a planned community as an international resort destination with residential, recreational, commercial, and institutional uses and facilities. The project is planned as a self-contained community with all public and quasi-public services provided. The project is located outside the Coachella Valley Water District (CVWD) boundaries and the applicant has entered into an agreement with the CVWD to manage artificial recharge of the Shaver's Valley groundwater. The proponent has purchased a firm water supply from Rosedale-Rio Bravo Water District in Kern County. In-kind water would be transferred to the MWD that would release water from the Colorado River Aqueduct to a 38-acre percolation pond on the project site. MWD would deliver approximately 10,000 AFY to the percolation pond and over the long term; no net loss of groundwater in storage is anticipated.

Table 4.1-2. Foreseeable Projects along the I-10 Corridor (Eastern Riverside County)

ID on Figure 4.1-1	Project Name; Agency ID	Location	Ownership	Status	Acres	Project Description
GG	Mecca Specific Plan	North of Salton Sea, east of community of Mecca, southeast of City of Coachella.	Mecca Group LLC	NOP of an EIR published in June 2008. Still under environmental review.	2,934	The proposed project includes 19,476 units with a mix of low-, medium- and high-density residential development. Non-residential uses include retail/commercial, mixed use, a golf course, and open space with civic uses and agricultural buffers. The Specific Plan incorporates existing residential, commercial, industrial, and civic uses with a blend of proposed low-, medium- and high-density residential and commercial land uses. The proposed General Plan Amendment and Change of Zone would be changed to Specific Plan and Specific Plan zoning.
HH	Proposed National Monument (former Catellus Lands)	Between Joshua Tree National Park and Mojave National Preserve		In December 2009, Senator Feinstein introduced bill S.2921 that would designate two new national monuments including the Mojave Trails National Monument.	941,000	The proposed Mojave Trails National Monument would protect approximately 941,000 acres of federal land, including approximately 266,000 acres of the former railroad lands along historic Route 66. The BLM would be given the authority to conserve the monument lands and also to maintain existing recreational uses, including hunting, vehicular travel on open roads and trails, camping, horseback riding and rockhounding.
II	BLM Solar Energy Zones (SEZs)	Along the I-10 corridor between Desert Center and Blythe	BLM	Proposed	202,896 (eastern Riverside County only)	The DOE and the BLM identified 24 tracts of land as Solar Energy Study Areas in the BLM and DOE Solar Programmatic Draft EIS, published in December 2010. These areas have been identified for in-depth study of solar development and may be found appropriate for designation as solar energy zones in the future.
JJ	CUP03602	South of Nicholls Warm Springs, approximately 8 miles west of Blythe.	N/A	CUP Approved in 2009	200	21 MW photovoltaic facility on 200 acres (Riverside County ALUC, 2008)
KK	Plot Plan No. 23885	Westerly of Ehlers Boulevard and northerly of Riverside Avenue	Calvary Chapel of Blythe	Approved	34.13	8,890-square-foot church with accessory outdoor amphitheatre/recreational area and ancillary parking and a detached 205-square-foot restroom building. Fourth Supervisorial District – Blythe Zoning District - Palo Verde Valley Area

Source: 1) Riverside County 2012.

Table 4.1-3. Cumulative Projects within the Geographic Scope of Cumulative Analysis for Each Resource Area

Resource Area/ BLM Program Area	Geographic Area of Consideration	Elements to Consider	Cumulative BLM Authorized and Other Known Projects/Actions/Activities
Air Resources	Six-mile radius around project site	VOC, NOx, CO, PM10, and PM2.5	• Eagle Mountain Pumping Plant (7) • Eagle Mountain Pumped Storage Project (H) • Desert Sunlight Solar Farm Project (R) • Sol Orchard Solar Project (U) • Silverado Power Project (N)
Biological Resources – Vegetation	NECO planning area	Loss and fragmentation of vegetation and habitat resources, impacts to special status species, contribution to groundwater depletion, and contribution to the spread of nonnative and invasive weeds, channel diversions of desert washes,	• All projects within the NECO planning area listed in Table 4.1-1 and 4.1-2 • Projects closest to the DHSP site are primarily renewable energy and infrastructure projects, and include • Desert Sunlight Solar Farm Project (R) • SCE Red Bluff Substation (S) • Eagle Mountain Wind Project Met Towers (Z) • Devers-Palo Verde No. 2 Transmission Line (D) • Desert Southwest Transmission Line (F) • Desert Center 50 Solar Project (T) • Silverado Power Project (N) • Palen Solar Energy Project (I)
Biological Resources – Wildlife	NECO planning area for most species. Colorado Desert Recovery Unit For the desert tortoise, the geographic scope is the Colorado Desert Recovery Unit, as described in the Revised Recovery Plan for the Mojave Population of the Desert Tortoise	Loss of desert tortoise habitat and connectivity, impacts to sensitive species, impacts to connectivity	• All projects within the NECO planning area listed in Table 4.1-1 and 4.1-2 • Projects closest to the DHSP site are primarily renewable energy and infrastructure projects, and include • Desert Sunlight Solar Farm Project (R) • SCE Red Bluff Substation (S) • Eagle Mountain Wind Project Met Towers (Z) • Devers-Palo Verde No. 2 Transmission Line (D) • Desert Southwest Transmission Line (F) • Desert Center 50 Solar Project (T) • Silverado Power Project (N) • Palen Solar Energy Project (I)
Climate Change	International, global	CO2e	• Global Cumulative Impacts
Cultural Resources	Locally: I-10 corridor between Desert Center and Blythe Regional Level: BLM Southern California Desert Region	Direct effects from physical disturbance or alteration or indirect effects from diminished character and setting of traditional use areas due to the presence of industrial structures	• All projects listed in Table 4.1-1 and 4.1-2. Cumulative analysis estimates cultural resources per acre of impact for these projects.

Table 4.1-3. Cumulative Projects within the Geographic Scope of Cumulative Analysis for Each Resource Area

Resource Area/ BLM Program Area	Geographic Area of Consideration	Elements to Consider	Cumulative BLM Authorized and Other Known Projects/Actions/Activities
Paleontology	Within the I-10 corridor between Desert Center and Blythe	Ground disturbance	All projects listed in Table 4.1-1 and 4.1-2.
Fire and Fuels Management	Within the I-10 corridor from Indio to Blythe, California for emergency response and within 1-mile of the proposed project for fire risk	Increase in fire ignitions, impacts to worker safety, emergency response, and fire protection	• All projects listed in Table 4.1-1 and 4.1-2 for emergency response. • The following projects for fire risk: • Desert Sunlight Solar Farm Project (R) • Chuckwalla Race Track (12) • Devers-Palo Verde No. 1 Transmission Line (4) • Blythe Energy Project Transmission Line (10) • Interstate 10 (1) • Silverado Power Project (N) • SCE Red Bluff Substation (S) • Desert Center 50 (for Alternative E) (T) • Sol Orchard Solar Project (U) • Devers-Palo Verde No. 2 Transmission Line (D)
Soils and Geology	Within 0.5-mile of the proposed project for seismic events and erosion, within the Aeolian sand transport corridor for sand transport	Soil, wind, and water erosion, impacts to the sand transport corridor	• Desert Sunlight Solar Farm Project (R) • Silverado Power Project (N) • Desert Sunlight Transmission Line (R) • SCE Red Bluff Substation (S) • Devers-Palo Verde No. 1 Transmission Line (4) • Blythe Energy Project Transmission Line (10) • Interstate 10 (1) • Devers-Palo Verde No. 2 Transmission Line (D) • Chuckwalla Race Track (Alternative D) (12) • Desert Center 50 Solar Project (Alternative D) (T) • Palen Solar Energy Project (Alternative E) (I)

Table 4.1-3. Cumulative Projects within the Geographic Scope of Cumulative Analysis for Each Resource Area

Resource Area/ BLM Program Area	Geographic Area of Consideration	Elements to Consider	Cumulative BLM Authorized and Other Known Projects/Actions/Activities
Energy and Minerals	Within 5-mile radius of the proposed project and alternatives	Loss of available energy and mineral resources.	• For the proposed project and all alternatives • Desert Sunlight Solar Farm Project (R) • Silverado Power Project (N) • Desert Center 50 Solar Project (T) • Chuckwalla Race Track (12) • Eagle Mountain Pumping Plant (7) • Eagle Mountain Pumped Storage Project (not for Alternative E) (H) • Eagle Mountain Wind Project Met Towers (not for Alternative E) (Z) • For Alternatives B through E • Palen Solar Energy Project (I) • Sol Orchard Solar Project (U) • SCE Red Bluff Substation (S) • Interstate 10 (1) • Devers-Palo Verde No. 1 Transmission Line (4) • Devers-Palo Verde No. 2 Transmission Line (D) • Blythe Energy Project Transmission Line (10)
Lands and Realty	Eastern Riverside County	Impacts to surrounding land and realty uses, conflicts with habitat conservation or natural community conservation plans, increase developed and industrial use	• All projects listed in Tables 4.1-1 and 4.1-2. Large scale energy projects in the nearby vicinity include: • Desert Sunlight Solar Farm Project (R) • Silverado Power Project (N) • Desert Center 50 Solar Project (T) • Eagle Mountain Pumping Plant (7) • Sol Orchard Solar Project (U) • Palen Solar Energy Project (I)
Noise and Vibration	0.5-mile from the area of noise generation.	Additive construction equipment noise	• Desert Sunlight Solar Farm Project (R) • Silverado Power Project (N) • Desert Sunlight transmission line (Alternatives B and C) (R) • Desert Center 50 Solar Project (Alternatives D) (T) • SCE Red Bluff Substation(Alternatives B through E) (S) • Interstate 10 (Alternatives B through E) (1)

Table 4.1-3. Cumulative Projects within the Geographic Scope of Cumulative Analysis for Each Resource Area

Resource Area/ BLM Program Area	Geographic Area of Consideration	Elements to Consider	Cumulative BLM Authorized and Other Known Projects/Actions/Activities
Public Health and Safety	Within the I-10 corridor from Indio to Blythe, California for emergency response and within the proposed project and alternatives and access routes for hazards	Hazardous spills and emergencies or fires at multiple locations	• All projects listed in Table 4.1-1 and 4.1-2 for emergency response. • The following projects for hazardous spills: • Desert Sunlight Solar Farm Project (R) • Desert Center 50 Solar Project (T) • Chuckwalla Race Track (12) • Silverado Power Project (N) • SCE Red Bluff Substation (Alternatives B through E) (S) • Interstate 10 (Alternatives B through E) (1)
Recreation	I-10 Corridor between Indio and Blythe	Impacts to recreational users, impacts to the existing character of the project site	• All projects listed in Table 4.1-1 and 4.1-2 for regional impacts. • The following projects for local recreational impacts: • Desert Sunlight Solar Farm Project (R) • Silverado Power Project (N) • Desert Center 50 Solar Project (T) • Palen Solar Energy Project (I) • Sol Orchard Solar Project (U) • Eagle Mountain Wind Project Met Towers (Z) • Eagle Mountain Pumping Plant (7) • Eagle Mountain Pumped Storage Project (H) • Eagle Mountain Landfill Project (X) • SCE Red Bluff Substation (S) • Devers-Palo Verde No. 1 Transmission Line (4) • Devers-Palo Verde No. 2 Transmission Line (D) • Blythe Energy Project Transmission Line. (5)

Table 4.1-3. Cumulative Projects within the Geographic Scope of Cumulative Analysis for Each Resource Area

Resource Area/ BLM Program Area	Geographic Area of Consideration	Elements to Consider	Cumulative BLM Authorized and Other Known Projects/Actions/Activities
Social and Economic Setting	Riverside County and the cities therein	Impacts to the labor force, impacts on local businesses and residents	• All projects listed in Table 4.1-1 and 4.1-2 for regional impacts. • Regarding labor force the following projects were considered: • Desert Sunlight Solar Farm Project (R) • Silverado Power Project (N) • Palen Solar Energy Project (I) • Blythe Solar Power Project (J) • NextEra (FPL) McCoy Solar Project (L) • McCoy Soleil Project (K) • Genesis Solar Energy Project (M) • Rice Solar Energy Project (O) • Blythe Airport Solar I Project (P) • Desert Quartzite (Q) • Blythe Mesa Solar I Project (V) • Rio Mesa Solar Electric Generating Facility (AA)
Environmental Justice	0.5 mile of the proposed project or its alternatives	Significant environmental impacts in the vicinity of the site	• Interstate 10 (1) • Devers-Palo Verde No. 1 Transmission Line (4) • West-wide Section 368 Energy Corridors (6) • BLM Recreational Opportunities • Blythe Energy Project Transmission Line (10) • Chuckwalla Race Track (12) • Desert Sunlight Solar Farm Project (R) • Silverado Power Project (N) • Devers-Palo Verde No. 2 Transmission Line (D) • Desert Southwest Transmission Line (F) • Sol Orchard Solar Project (U) • SCE Red Bluff Substation (S)

Table 4.1-3. Cumulative Projects within the Geographic Scope of Cumulative Analysis for Each Resource Area

Resource Area/ BLM Program Area	Geographic Area of Consideration	Elements to Consider	Cumulative BLM Authorized and Other Known Projects/Actions/Activities
Special Designations	Northern boundary of the Joshua Tree Wilderness Area south to the southern boundary of the Chuckwalla Mountains Wilderness Area. Eastern and western boundaries would also be determined by the Wilderness Area boundaries	Impacts to lands under special designation	• Interstate 10 (1) • Devers-Palo Verde No. 1 Transmission Line (4) • West-wide Section 368 Energy Corridors (6) • BLM Recreational Opportunities • Blythe Energy Project Transmission Line (10) • Chuckwalla Race Track (12) • Desert Sunlight Solar Farm Project (R) • Silverado Power Project (N) • Devers-Palo Verde No. 2 Transmission Line (D) • Desert Southwest Transmission Line (F) • Sol Orchard Solar Project (U) • SCE Red Bluff Substation (S)
Transportation and Public Access	The regional roadway network considered for analysis of project-impacts	Performance of Circulation System (LOS)	• Eagle Mountain Pumped Storage Project (H) • Palen Solar Energy Project (I) • Desert Sunlight Solar Farm Project (R) • SCE Red Bluff Substation (S) • Desert Center 50 Solar Project (T) • Sol Orchard Solar Project (U) • Eagle Mountain Landfill Project (X) • Silverado Power Project (N)

Table 4.1-3. Cumulative Projects within the Geographic Scope of Cumulative Analysis for Each Resource Area

Resource Area/ BLM Program Area	Geographic Area of Consideration	Elements to Consider	Cumulative BLM Authorized and Other Known Projects/Actions/Activities
Visual Resources	Local and regional viewshed	"Industrialization" or "urbanization" of the existing rural or undeveloped landscape character	• Interstate 10 (1) • Devers-Palo Verde No. 1 Transmission Line (4) • Eagle Mountain Pumping Plant (7) • Kaiser Mine (9) • Blythe Energy Project T-Line (5) • Chuckwalla Race Track (12) • Blythe Energy Project (5) • Blythe PV Project (11) • Devers-Palo Verde No. 2 Transmission Line (D) • Desert Southwest Transmission Line (F) • Eagle Mountain Pumped Storage Project (H) • Blythe Energy Project II (G) • Blythe Solar Power Project (J) • NextEra (FPL) McCoy Solar Project (L) • Palen Solar Energy Project (I) • Desert Sunlight Solar Farm Project (R) • SCE Red Bluff Substation (S) • Desert Center 50 Solar Project (T) • Sol Orchard Solar Project (U) • Eagle Mountain Landfill Project (X) • Eagle Mountain Wind Project Met Towers (Z) • Silverado Power Project (N) • Genesis Solar Energy Project (M) • Blythe Airport Solar I Project (P) • Wiley's Well Communication Tower (Y) • BLM Solar Energy Zones

Table 4.1-3. Cumulative Projects within the Geographic Scope of Cumulative Analysis for Each Resource Area

Resource Area/ BLM Program Area	Geographic Area of Consideration	Elements to Consider	Cumulative BLM Authorized and Other Known Projects/Actions/Activities
Water Resources	Chuckwalla Valley Groundwater Basin	Water supply, surface drainage patterns; flooding and earth-disturbing activities that result in erosion and sedimentation	• Palen Solar Energy Project (I) • desert sunlight solar farm project (R) • SCE Red Bluff Substation (S) • Devers-Palo Verde No. 2 Transmission Line (D) • Colorado River Substation Expansion (E) • Blythe Energy Project Transmission Line (10) • Desert Southwest Transmission Line (F) • Eagle Crest Pumped Storage Startup • Genesis Solar Energy Project (M) • Blythe Energy Project Transmission Line (10) • Desert SouthWest Transmission Line (F) • Silverado Power Project (N) • Sol Orchard Solar Project (U) • Desert Center 50 Solar Project (T)
Wastes, Solid and Hazardous	Eastern Riverside County	Contribution to landfill use and capacity	• All projects listed in Table 4.1-1 and 4.1-2 that would undergo construction for contribution to landfill. • Projects with the most similar types of wastes include: • Desert Sunlight Solar Farm Project (R) • Silverado Power Project (N) • Palen Solar Energy Project (I) • Blythe Solar Power Project (J) • NextEra (FPL) McCoy Solar Project (L) • McCoy Soleil Project (K) • Genesis Solar Energy Project (M) • Rice Solar Energy Project (O) • Blythe Airport Solar I Project (P) • Desert Quartzite (Q) • Blythe Mesa Solar I Project (V) • Rio Mesa Solar Electric Generating Facility (AA) • Desert Center 50 Solar Project (T)

4.2 AIR RESOURCES

4.2.1 Methodology for Analysis

Potential effects on air resources from the proposed project and alternatives may occur as a result of emissions of criteria pollutants from the construction, operation and decommissioning of the proposed project and alternatives. Quantitative emission estimates for criteria pollutants were prepared based on the Applicant provided construction and operation assumptions in order to evaluate the significance of the proposed project and alternatives. Emissions and impacts of decommissioning of the proposed project and alternatives were analyzed qualitatively as well.

The project site area is located under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). SCAQMD has adopted regional emission significance thresholds for construction activities and for project-related operation emissions that are subject to CEQA review. The construction and operation emissions associated with the proposed project and each alternative are compared to these SCAQMD regional emission significance thresholds to determine whether the proposed project and alternatives would result in unavoidable adverse air quality impacts. The SCAQMD regional emission significance thresholds are summarized in Table 4.2-1.

Table 4.2-1. SCAQMD Regional Significance Thresholds (lbs/day)

Pollutant	Construction	Operation
Nitrogen Oxides	100	55
Volatile Organic Compounds	75	55
Carbon Monoxide	550	550
Inhalable Particulate Matter (PM10)	150	150
Fine Particulate Matter (PM2.5)	55	55
Sulfur Oxides	150	150

Source: SCAQMD 2011a

SCAQMD has established Localized Significance Thresholds (LSTs) for each Source Receptor Area (SRA) within the SCAQMD jurisdiction. LSTs are used to determine if a project exceeds ambient air quality standards or cause substantial contribution to existing exceedances at given distances from the site to nearby receptor locations. LSTs for the project site area are presented in Table 4.2-2 below.

Table 4.2-2. SCAQMD Localized Significance Emissions Thresholds

Pollutant	Distance (meters)	Construction (lbs/day)			Operation (lbs/day)		
		1 Acres	3 Acres	5 Acres	1 Acres	3 Acres	5 Acres
Nitrogen Oxides	500	652	684	780	652	684	780
Carbon Monoxide	500	17,640	18,947	22,530	17,640	18,947	22,530
PM10	500	178	186	207	43	45	50
PM2.5	500	86	91	105	21	22	26

Source: SCAQMD 2011b

As presented in Table 3.2-4 in Section 3.2, there are no federal nonattainment or maintenance designations in the Mojave Desert Air Basin portion of Riverside County. Federal agency actions in the Mojave Desert Air Basin portion of Riverside County are not subject to general conformity review requirements.

4.2.2 Applicant Measures

The following Applicant Measures (AMs) have been incorporated as design features of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project. In some cases, mitigation measures further clarify or expand on AM reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures imposed for air quality impacts and the following AMs, the mitigation measures take precedence.

AM AQ-1 **Dust Control Plan.** Applicant will develop and implement a dust control plan that includes the use of dust palliatives to ensure compliance with SCAQMD Rule 403. The dust control plan is expected to focus on reducing fugitive dust from construction activities.

AM AQ-2 **Phased construction activity.** Construction activity will be phased across the Solar Project site in a manner that would minimize the area disturbed on any single day.

AM AQ-3 **Minimize emissions from grading.** Cut and fill quantities will be balanced across the Solar Project site to minimize emissions from grading and to avoid the need to import fill materials or to remove excess soil.

AM AQ-4 **Transportation Plan.** Applicant would require bidders for the construction contract to submit a transportation plan describing how workers would travel to the project site and how to encourage carpooling and alternative forms of transportation.

4.2.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the Desert Harvest Solar Project (DHSP) would not be approved by the BLM, and BLM would not amend the California Desert Conservation Area (CDCA) Plan. As a result, no solar energy project would be constructed, operated, or decommissioned on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, impacts would not occur.

4.2.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site, and BLM would manage the site

consistent with the amended land use designation in the CDCA Plan. It is possible, as a result of the CDCA Plan amendment, that in the future another solar energy generation project could be proposed with impacts similar to the DHSP, however, such impacts are speculative at this time, and no impacts from the DHSP would occur.

4.2.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.2.6 Alternative 4 – Proposed Solar Project

Construction

Construction is anticipated to commence during the 2nd quarter of 2013, and continue through the 3rd quarter of 2015, in three phases. Commercial operation would also be phased and the first phase of operation would commence during the 2nd quarter of 2014, with commercial operation of the final phase commencing during the 3rd quarter of 2015. The construction schedule would be as follows:

- Phase 1 Construction: April 2013 to July 2013 (3 months)
- Phase 2 Construction: September 2013 to November 2014 (14 months)
- Phase 3 Construction: November 2014 to May 2015 (6 months)

Construction of Phase 1 would include pre-construction surveys, exclusion fencing around a 10-acre area in the northwest corner of the DHSP site, desert tortoise exclusion (if tortoise are present), clearing and construction of a laydown yard, parking area, and pad mounts for transformers.

Construction of Phase 2 would include site fencing, installation of temporary power, site grading and preparation over a 1,043-acre area, construction of the O&M building (if necessary) and on-site roads, construction of the on-site wells, construction of the project substation and switch-yard, and assembly and installation of panel blocks and wiring for 137 MW of solar power.

Construction of Phase 3 would include site grading and preparation over a 155-acre area, assembly and installation of panel blocks and wiring for 13 MW of solar power. Panel blocks would not be installed within the FERC exclusion area crossing the southern parcel (see Figure 2-3a in Appendix A for more detail).

Construction would generally occur 2 hours before sunrise and 2 hours after sunset, Monday through Friday. Additional hours may be necessary to correct DHSP schedule deficiencies or to complete critical construction activities. For instance, during hot weather, it may be necessary to start work earlier to avoid pouring concrete during high ambient temperatures. During the startup phase of the project, some activities may be performed over the weekend.

Direct Effects

Construction of Alternative 4 would result in emissions of the following air pollutants: VOCs, NOx, carbon monoxide (CO), particulate matter under 10 micrometers in diameter (PM10), particulate matter under 2.5 micrometers in diameter (PM2.5), and sulfur oxides (SOx).

Emissions from construction would result from fuel combustion and exhaust from construction equipment and vehicle traffic, grading, and use of volatile building materials (e.g., paints and lubricants). Fugitive dust emissions would be generated from earth moving activities such as dozing, grading and material loading/handling, and vehicle trips on paved/unpaved roads. Land disturbance during construction would also result in generation of fugitive dust due to wind erosion. Emissions are estimated based on following assumptions and project schedule as provided by the Applicant:

- Emissions are estimated based on the construction schedule and equipment, and operating equipment and activities provided by the Applicant.
- The number of on-road truck trips and the number of construction employee trips are provided by the Applicant. Construction vehicles and equipment are shown in Chapter 2, and emissions are conservatively estimated for potentially overlapping truck deliveries and other vehicles causing up to 56 daily deliveries.
- Average number of construction workers would be 100 with the maximum of 250 construction workers during peak days.
- Construction workers could commute from housing centers in the Mojave Desert Air Basin, such as Blythe, or from outside the project study area, such as Palm Springs. To account for worker trips that may extend to the boundary of the air basin, the maximum length would be an estimated 75 miles for each one-way trip for each employee vehicle. The origin of the raw materials was not specified by the Applicant therefore assumed to require a one-way trip of 75 miles. Emissions for travel over greater distances would be outside the project study area.

Project construction emissions were estimated using California Emissions Estimator Model (CalEEMod, ver. 2011.1.1). Although the project emissions were modeled based on the construction schedule, equipment, vehicle trips provide by the Applicant, detailed information about construction equipment and trip requirement for each phase was not provided. Therefore, the project construction was modeled as a single phase assuming that construction equipment provided by the Applicant is daily average requirement.

Tables 4.2-3 and 4.2-4 summarize the daily and annual mitigated construction air emissions with implementation of Tier 3 equipment, oxidation catalyst, diesel particulate filter (DPF), soil stabilizer, and watering (3 times/day). See Appendix D for unmitigated emissions estimates. Table 4.2-3 compares the maximum mitigated daily construction emissions with the recommended SCAQMD thresholds of significance as shown in Table 4.2-1.

Table 4.2-3. Mitigated Daily Construction Emissions (lbs/day), Alternative 4 – Proposed Solar Project

	VOC	NOx	CO	PM10	PM2.5	SO_2
Month 1-4	111.29	359.15	698.13	268.21	49.64	1.06
Month 5-16	94.27	354.63	783.09	262.41	48.88	1.23
Month 17-24	90.16	341.02	751.84	262.00	48.46	1.23
Thresholds	75	100	550	150	55	150

Note: Maximum daily construction emissions could be higher on certain days with more construction employees than the average number of construction employees.
Source: See Appendix D for detailed modeling assumptions and emission estimates.

Table 4.2-4. Mitigated Annual Construction Emissions (tons/year), Alternative 4 – Proposed Solar Project

	VOC	NOx	CO	PM10	PM2.5	SO_2
Month 1-4	4.62	15.27	27.66	10.74	2.08	0.05
Month 5-16	11.84	45.80	95.93	31.84	6.18	0.16
Month 17-24	7.52	29.21	61.39	21.07	4.06	0.11
Total	23.98	90.28	184.98	63.65	12.32	0.32

Source: See Appendix D for detailed modeling assumptions and emission estimates.

Mitigated maximum daily emissions are estimated to exceed the thresholds of VOC, NOx, CO, and PM10 as presented in Table 4.2-3. Because Alternative 4 would result in substantial VOC, NOx, CO, and PM10 emissions, Mitigation Measures AIR-1 (Fugitive Dust Control Plan) and AIR-2 (Control On-Site Emissions) are imposed to minimize air quality impacts to the extent feasible as recommended by SCAQMD for projects subject to CEQA and as required by SCAQMD Rule 403 (SCAQMD 2011c). The full text of Mitigation Measures is presented below.

Sensitive receptors would be affected by temporary and unavoidable adverse impacts from construction of Alternative 4. There are a few scattered rural residences within 1.5 miles of the proposed solar facility. The closest occupied residence is 6,500 feet (1.24 miles) east-southeast from the proposed solar facility property line. All other nearby homes are 7,800 feet (1.48 miles) or farther from the proposed solar facility property line. JTNP is located 1.8 miles to the northeast, 3.5 miles to the west, and over 7 miles to the north. The Eagle Mountain Elementary School and the Eagle Mountain Village residential area are over 5.5 miles northwest of the proposed solar facility site. The Lake Tamarisk development is about 2.75 miles south of the proposed solar facility site. The community of Desert Center is about 5 miles south of the proposed solar facility site. Due to the distances from the project site, localized impacts on sensitive receptors would not be adverse. There are no appropriate LSTs for Alternative 4 since the maximum receptor distances associated with LSTs is 500 meters (1,640 feet) while the nearest residential receptor is located more than 1,980 meters (6,500 feet) from the proposed solar facility site.

As noted in Section 3.2, Air Resources, the Class I area closest to the project is the JTNP. Visibility is considered an important air quality value to be protected within JTNP. Since the nearest boundary of the JTNP is 1.8 miles from the project site, airborne dust generated at the project site could be visible during construction from within the park, especially because low humidity

provides clear vistas and relatively low haze. Construction activities would not require use of any major stationary sources that could permanently affect regional air quality or visibility at the Class I area, and the sources of emissions during construction would occur near the ground level where dust would have a limited ability to notably affect distant vistas. Precursors to haze would also be intermittently released near ground level by construction equipment exhaust. Because of the diffuse and intermittent nature of construction sources, the emissions would be widely dispersed across the project site, and concentrations near the JTNP would be greatly reduced and much lower than the localized effects near the project site. Emissions during construction of Alternative 4 would occur primarily during daytime hours and would be controlled to avoid visible plumes as required by SCAQMD Rule 403. Airborne dust generated by wind erosion would be greatly reduced in concentration over nighttime hours when construction activity ceases for the day. Construction activity would be phased across the solar project site over a 2-year period, limiting the amount of disturbed area that could produce fugitive dust from wind erosion at any one time. In addition, Mitigation Measures AIR-1 (Fugitive Dust Control Plan) and MM AIR-2 (Control On-Site Emissions) would be implemented to reduce dust and equipment exhaust emissions by requiring use of newer equipment and other strategies like electrification of equipment. These emissions control requirements ensure that development of Alternative 4 would result in only a small and temporary increase in wind erosion potential or visibility reduction compared to natural conditions. Consequently, construction of Alternative 4 with dust controlled to avoid visible plumes as required by SCAQMD Rule 403 would not produce an adverse impact to vistas or in night sky visibility in the JTNP Class I area.

Indirect Effects

There would be no indirect effects associated with Alternative 4 during construction.

Operation and Maintenance

Operation activities would include routine maintenance of the solar project, removal of noxious weeds, and roads maintenance. Routine maintenance includes torque electrical fittings, cleaning of switch gear, calibration of protective relays, fire protection system test and annual certification, fuse swapping and testing of ground fault detection and power quality. In order to perform these operation and maintenance activities, the project would require 16 full-time staff and 4 pickup trucks on-site.

Direct Effects

Operation of Alternative 4 would result in substantially lower emissions than project construction, since Alternative 4 would not have any major stationary emission sources. Operation emissions of Alternative 4 would be limited to maintenance activities and vehicles trips required for operation/maintenance. Fugitive dust emissions during operation would be generated mostly from vehicle trips for employee commutes, security, and maintenance activities. Operation emissions are estimated based on the maintenance activities and equipment provided by the Applicant.

Tables 4.2-5 and 4.2-6 summarize the daily and annual mitigated operation air emissions. See Appendix D for unmitigated emissions estimates.

Table 4.2-5. Mitigated Daily Operation Emissions (lbs/day), Alternative 4 – Proposed Solar Project

	VOC	NOx	CO	PM10	PM2.5	SO_2
Daily Emissions	2.89	3.50	30.68	49.62	4.88	0.04
Thresholds	55	55	550	150	55	150

Source: See Appendix D for detailed modeling assumptions and emission estimates.

Table 4.2-6. Mitigated Annual Operation Emissions (tons/year), Alternative 4 – Proposed Solar Project

	VOC	NOx	CO	PM10	PM2.5	SO_2
Annual Emissions	1.53	0.46	4.55	8.97	0.88	0.01

Source: See Appendix D for detailed modeling assumptions and emission estimates.

As shown in Table 4.2-5, with mitigation, operation emissions for all criteria pollutants would be below the SCAQMD thresholds. Similar to construction, fugitive dust emissions during operation of Alternative 4 would occur primarily during daytime hours. Airborne dust generated from the project site would be widely and intermittently dispersed across the site. Due to the very limited operation emission sources, operation dust emissions would be minimal and would be reduced further by implementing Mitigation Measure AIR-3 (Control Operational Fugitive Dust). Therefore, the project operation would result in a negligible increase in wind erosion potential, and would not result in an adverse impact on visibility.

Mitigation Measure AIR-3 (Control Operational Fugitive Dust) is required to reduce particulate emissions to the extent feasible in accordance with SCAQMD rules and regulations and to ensure that the PM10 emission would be below the SCAQMD regional significance threshold of 150 lbs/day.

Implementation of Mitigation Measure AIR-4 (Control Equipment Emissions) would reduce NOx emissions. This mitigation measure would ensure that the project's diesel particulate matter (DPM) and NOx emissions are reasonably mitigated.

Indirect Effects

The electricity produced by Alternative 4 would displace electricity generated from other power plants, which would avoid the need for their operation. However, the exact nature and location of any changes in criteria air pollutant emission rates is not known and would not likely occur near the project area.

Decommissioning

At the end of the life of Alternative 4, above-ground structures would be removed and demolished, and the site would be returned to its original condition. Decommissioning activities and equipment would be similar to those for project construction.

Direct Effects

Decommissioning of Alternative 4 would require disassembly of the solar panels, demolition of on-site building, and removal of perimeter fencing. After removal of equipment and buildings, the site would need to be re-vegetated. Equipment used for decommissioning would generally

be similar to that used for construction, except that no grading and clearing would be required. Since decommissioning of Alternative 4 does not involve grading or clearing activities, the level of fugitive dust emissions would be less than emissions created during construction. In addition, the site is likely to be re-vegetated, which would further reduce fugitive dust emissions. Because decommissioning would occur after serving at least 30 years, it is likely that equipment engine technology would be more advanced and fuel would be cleaner. Mitigation measures that are similar to those identified for Alternative 4 construction would be implemented during decommissioning, as part of the decommission plan to be developed and approved by the BLM. Therefore, criteria pollutant emissions generated during decommissioning would be significantly less than the emissions estimated for project construction.

While criteria pollutant emissions associated with decommissioning would be less than the estimated project construction emissions, it is difficult to determine the impacts of project decommissioning due to uncertainties of air quality conditions, visibility, and federal and state regulatory standards in the future.

Indirect Effects

There would be no indirect effects associated with Alternative 4 during decommissioning.

Mitigation Measures

The following mitigation measures would be implemented to reduce NOx, PM10 and PM2.5 emissions to the maximum extent feasible.

MM AIR-1 **Fugitive Dust Control Plan.** The project owner shall develop a Fugitive Dust Control Plan in compliance with SCAQMD Rule 403 to reduce PM10 and PM2.5 emissions during construction. The Fugitive Dust Control Plan shall include:

- Name(s), address(es), and phone number(s) of person(s) responsible for the preparation, submission, and implementation of the plan;
- Description and location of construction activities; and
- Listing of all fugitive dust emissions sources included in the construction activities.
- The following dust control measures shall be implemented:

  The road leading to the operations and maintenance facility shall be paved as early as practical during construction.

  All other onsite unpaved roads shall be effectively stabilized using soil stabilizers that can be determined to be as efficient as or more efficient for fugitive dust control than California Air Resources Board approved soil stabilizers, and that shall not increase any other environmental impacts including loss of vegetation.

  All material excavated or graded will be sufficiently watered to prevent excessive dust. Watering will occur as needed with complete coverage of disturbed areas. The excavated soil piles are watered hourly for the duration of construction or covered with temporary coverings.

Construction activities that occur on unpaved surfaces will be discontinued during windy conditions when winds exceed 25 miles per hour and when those activities cause visible dust plumes. All grading activities shall be suspended when wind speeds are greater than 30 miles per hour.

Track-out shall not extend 25 feet or more from an active operation and track-out shall be removed at the conclusion of each workday.

A wheel-washing system shall be installed and used to remove bulk material from tires and vehicle undercarriages before vehicles exit the project property.

All hauling materials should be moist while being loaded into dump trucks. All haul trucks hauling soil, sand, and other loose materials shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions).

Soil loads should be kept below 18 inches or the freeboard of the truck.

Drop heights should be minimized when loaders dump soil into trucks.

Gate seals should be tight on dump trucks.

Traffic speeds on unpaved roads shall be limited to 15 miles per hour.

Other fugitive dust control measures as necessary to comply with South Coast Air Pollution Control District Rules and Regulations.

Disturbed areas should be minimized.

Disturbed areas should be revegetated as soon as possible after disturbance.

- For JTNP, the project shall not result in an increase in ambient dust conditions within the Park boundaries during construction. During construction, the project owner shall contribute fair-share funding for operation of existing dust monitoring stations associated with the Desert Sunlight Solar Farm project. Fair-share funding shall be negotiated with the Desert Sunlight Solar Farm project and approved by JTNP. The project owner shall provide access to real-time dust monitoring data to Park staff to the extent feasible, and shall immediately address non-compliance with Park dust standards with Park staff. The burden of proof of infeasibility of real-time monitoring shall rest with the project owner.
- The project owner shall provide an on-site dust monitor on weekend days (Saturday and Sunday) and holidays during the construction period (i.e., during non-working daytime hours) to ensure that fugitive dust conditions from destabilized soils are immediately detected. The on-site dust monitor shall immediately respond to fugitive dust conditions at the project site by mobilizing project personnel to apply water or other approved dust palliatives to destabilized soils in authorized work zones. The monitor shall document all dust palliative compliance events in a log to be submitted to the National Park Service and the BLM within one week after the occurrence of each non-compliance event. Both the duration of the event and a description of the response shall be documented in the log.

MM AIR-2 **Control On-Site Emissions.** The project owner shall control emissions from the on-site off-road construction equipment by implementing the following:

- All off-road construction diesel engines not registered under California Air Resources Board's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower to 750 horsepower, shall meet, at a minimum, the Tier 3 California Emission Standards for Off-road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 3 or Tier 4 engine is not available for any off-road engine larger than 100 horsepower and smaller than 750 horsepower, that engine shall be equipped with retrofit controls that would provide nitrogen oxides and particulate matter emissions that are equivalent to Tier 3 engine. Off-road equipment with diesel engines larger than 750 horsepower shall meet Tier 2 or Tier 3 California Emission Standards.
- All equipment shall be turned off when not in use. Engine idling of all equipment shall be minimized.
- All equipment engines shall be maintained in good operating condition and in proposed tune per manufacturers' specification.
- Where appropriate, use alternatively fueled construction equipment, and utilize grid-based electricity and/or onsite renewable electricity generation rather than diesel and/or gasoline powered generators.
- Construction contracts shall incorporate the following controls to ensure effective implementation of the emission reductions: employ periodic unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained and tuned; prohibit any tampering with engines; identify where implementation of mitigation measures is rejected based on economic infeasibility.

MM AIR-3 **Control Operational Fugitive Dust.** The project owner shall control fugitive dust from the unpaved roads on the site during operation using the following methods:

- The main access road for employees and deliveries to the maintenance complex shall be paved as early during construction as practical.
- The other unpaved roads at the site shall be stabilized using water or soil stabilizers so that vehicle travel on these roads does not cause visible dust plumes.
- Traffic speeds on unpaved roads shall be limited to no more than 15 miles per hour. Traffic speed signs shall be displayed prominently at all site entrances and at egress point(s) from the central maintenance complex.
- For JTNP, the project shall not result in an increase in ambient dust conditions within the Park boundaries during operation. Over the operational life of the project, the project owner shall contribute fair-share funding for operation of

existing dust monitoring stations associated with the Desert Sunlight Solar Farm project. Fair-share funding shall be negotiated with the Desert Sunlight Solar Farm project and approved by JTNP. The project owner shall provide access to real-time dust monitoring data to Park staff to the extent feasible, and shall immediately address non-compliance with Park dust standards with Park staff. The burden of proof of infeasibility of real-time monitoring shall rest with the project owner.

MM AIR-4 **Control Equipment Emissions.** The project owner shall control emissions from the on-site dedicated equipment (i.e., equipment that would remain on site each day) by implementing the following:

- All on-site on-road vehicles for operation/maintenance shall be new equipment that meets the recent California Air Resources Board engine emission standards or alternatively fueled construction equipment, such as compressed natural gas, liquefied natural gas, or electric, as appropriate.
- All equipment shall be turned off when not in use. Engine idling of all equipment shall be minimized.

Residual Impacts and Unavoidable Adverse Effects

Mitigation Measures AIR-1 (Fugitive Dust Control Plan) and MM AIR-3 (Control Operational Fugitive Dust) would mitigate particulate matter emissions during construction and operation to the maximum extent feasible. Mitigation Measures AIR-2 (Control On-Site Emissions) and MM AIR-4 (Control Equipment Emissions) would mitigate DPM and NOx emissions to the extent feasible by requiring use of newer equipment and other strategies like electrification of equipment. Nonetheless, Alternative 4 would have temporary and unavoidable adverse VOC, NOx, CO, and PM10 impacts during construction because, as explained above, daily construction emissions would exceed SCAQMD thresholds. Unlike construction, operation of Alternative 4 would not have any unavoidable adverse effects as the operation and maintenance activities required would be minimal. For all other criteria pollutants, the impacts would not be substantial during either construction or operation. Decommissioning of Alternative 4 would require activities that are similar to construction, but criteria pollutant emissions generated during decommissioning would be less than construction emissions since it is likely that equipment engine technology would be more advanced and fuel would be cleaner at the time of decommissioning. While criteria pollutant emissions associated with decommissioning would be less than the estimated project construction emissions, it is difficult to determine the impacts of project decommissioning due to uncertainties of air quality conditions, visibility, and federal and state regulatory standards in the future.

4.2.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA). Alternative 5 would encompass 1,161 acres and the areas cleared of vegetation would be the same as for Alternative 4, 107 acres.

Construction

Construction components of Alternative 5 would be identical to those of Alternative 4.

Direct Effects

Alternative 5 would require slightly less construction materials and related truck trips, and possibly slightly fewer construction workers than Alternative 4; however, the difference would be minimal. Due to the reduced area of disturbance, fugitive dust emissions generated under Alternative 5 are expected to be slightly less than those under Alternative 4. Therefore, Alternative 5 would generate slightly less emissions for all criteria pollutants, but the air quality impacts under Alternative 5 would be essentially the same as those impacts under Alternative 4. All of the same mitigation measures are required

Indirect Effects

There would be no indirect effects associated with Alternative 5 during construction.

Operation and Maintenance

Operation and maintenance activities under Alternative 5 would be almost identical to those under Alternative 4.

Direct Effects

Similar to Alternative 4, emission sources for Alternative 5 operation would be limited to vehicles trips required for employee commutes and operation/maintenance activities. Therefore, operation emissions would be substantially less than construction emissions. Air quality impacts during Alternative 5 would be similar to those impacts during Alternative 4; therefore operation of Alternative 5 would not result in an unavoidable adverse impact. All of the same mitigation measures are required as for Alternative 4.

Indirect Effects

Similar to Alternative 4, the electricity produced by Alternative 5 would also displace electricity generated from other power plants, which would avoid the need for their operation. Indirect operation impacts of Alternative 5 would be identical to those of Alternative 4.

Decommissioning

Decommissioning under Alternative 5 would be essentially to same as decommissioning under Alternative 4, except that the area needs to be re-vegetated would be smaller due to the smaller disturbance acres.

Direct Effects

Required decommissioning activities and equipment under Alternative 5 would be similar to those described under Alternative 4. Alternative 5 would require slightly less equipment use due to the smaller disturbance area subject to re-vegetation during decommissioning. However, the difference would be minimal; therefore impacts of Alternative 5 decommissioning would be essentially identical to those of Alternative 4 decommissioning.

Indirect Effects

There would be no indirect effects associated with Alternative 5 during decommissioning.

Mitigation Measures

The measures identified for Alternative 4 would also be implemented under Alternative 5.

Residual Impacts and Unavoidable Adverse Effects

Residual impacts after mitigation of Alternative 5 would be identical to those of Alternative 4. Alternative 5 would have temporary and unavoidable adverse VOC, CO, NOx, PM10 and PM2.5 impacts during construction. Unlike construction, Alternative 5 operation would not have any unavoidable adverse effects as the operation/maintenance activities required for Alternative 5 would be minimal. Decommissioning of Alternative 5 would require activities that are similar to construction, but criteria pollutant emissions generated during decommissioning would be less than construction emissions since it is likely that equipment engine technology would be more advanced and fuel would be cleaner at the time of decommissioning. While criteria pollutant emissions associated with decommissioning would be less than the estimated project construction emissions, it is difficult to determine the impacts of project decommissioning due to uncertainties of air quality conditions, visibility, and federal and state regulatory standards in the future.

4.2.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would exclude the 155-acre southern parcel of the project and minor portions in the northern parcel. Alternative 6 would encompass 1,044 acres and the areas cleared of vegetation would be slightly less than those for Alternative 4.

Construction

Construction components of Alternative 6 would be identical to those of Alternative 4.

Direct Effects

Alternative 6 would require slightly less construction materials and related truck trips, and possibly slightly fewer construction workers than Alternative 4; however, the difference would be minimal. Due to the reduced area of disturbance, fugitive dust emissions generated under Alternative 6 are expected to be slightly less than those under Alternative 4. Therefore, Alternative 6 would generate slightly less emissions for all criteria pollutants, but the air quality impacts under Alternative 6 would be essentially the same as those impacts under Alternative 4. All of the same mitigation measures are required

Indirect Effects

There would be no indirect effects associated with Alternative 6 during construction.

Operation and Maintenance

Operation and maintenance activities under Alternative 6 would be almost identical to those under Alternative 4.

Direct Effects

Similar to Alternative 4, emission sources for Alternative 6 operation would be limited to vehicles trips required for employee commutes and operation/maintenance activities. Therefore,

operation emissions would be substantially less than construction emissions. Air quality impacts during Alternative 6 would be similar to those impacts during Alternative 4; therefore operation of Alternative 6 would not result in an unavoidable adverse impact. All of the same mitigation measures are required as for Alternative 4.

Indirect Effects

Similar to Alternative 4, the electricity produce by Alternative 6 would also displace electricity generated from other power plants, which would avoid the need for their operation. Indirect operation impacts of Alternative 6 would be identical to those of Alternative 4.

Decommissioning

Decommissioning under Alternative 6 would be essentially to same as decommissioning under Alternative 4, except that the area needs to be re-vegetated would be smaller due to the smaller disturbance acres.

Direct Effects

Required decommissioning activities and equipment under Alternative 6 would be similar to those described under Alternative 4. Alternative 6 would require slightly less equipment use due to the smaller disturbance area subject to re-vegetation during decommissioning. However, the difference would be minimal; therefore impacts of Alternative 6 decommissioning would be essentially identical to those of Alternative 4 decommissioning.

Indirect Effects

There would be no indirect effects associated with Alternative 6 during decommissioning.

Mitigation Measures

The measures identified for Alternative 4 would also be implemented under Alternative 6.

Residual Impacts and Unavoidable Adverse Effects

Residual impacts after mitigation of Alternative 6 would be identical to those of Alternative 4. Alternative 6 would have temporary and unavoidable adverse VOC, CO, NOx, and PM10 impacts during construction. Unlike construction, Alternative 6 operation would not have any unavoidable adverse effects as the operation/maintenance activities required for Alternative 6 would be minimal. Decommissioning of Alternative 6 would require activities that are similar to construction, but the impacts would be less than construction impacts since it is likely that equipment engine technology would be more advanced and fuel would be cleaner at the time of decommissioning.

4.2.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet.

Construction

Construction components of Alternative 7 would be identical to those of Alternative 4.

Direct Effects

Alternative 7 would require slightly less construction materials and related truck trips, and possibly slightly fewer construction workers than Alternative 4; however, the difference would be minimal. Due to the reduced area of disturbance, fugitive dust emissions generated under Alternative 7 are expected to be slightly less than those under Alternative 4. Therefore, Alternative 7 would generate slightly less emissions for all criteria pollutants, but the air quality impacts under Alternative 7 would be essentially the same as those impacts under Alternative 4. All of the same mitigation measures are required

Indirect Effects

There would be no indirect effects associated with Alternative 7 during construction.

Operation and Maintenance

Operation and maintenance activities under Alternative 7 would be almost identical to those under Alternative 4.

Direct Effects

Similar to Alternative 4, emission sources for Alternative 7 operation would be limited to vehicles trips required for employee commutes and operation/maintenance activities. Therefore, operation emissions would be substantially less than construction emissions. Air quality impacts during Alternative 7 would be similar to those impacts during Alternative 4; therefore operation of Alternative 7 would not result in an unavoidable adverse impact. All of the same mitigation measures are required as for Alternative 4.

Indirect Effects

Similar to Alternative 4, the electricity produce by Alternative 7 would also displace electricity generated from other power plants, which would avoid the need for their operation. Indirect operation impacts of Alternative 7 would be identical to those of Alternative 4.

Decommissioning

Decommissioning under Alternative 7 would be essentially to same as decommissioning under Alternative 4, except that the area needs to be re-vegetated would be smaller due to the smaller disturbance acres.

Direct Effects

Required decommissioning activities and equipment under Alternative 7 would be similar to those described under Alternative 4. Alternative 7 would require slightly less equipment use due to the smaller disturbance area subject to re-vegetation during decommissioning. However, the difference would be minimal; therefore impacts of Alternative 7 decommissioning would be essentially identical to those of Alternative 4 decommissioning.

Indirect Effects

There would be no indirect effects associated with Alternative 7 during decommissioning.

Mitigation Measures

The measures identified for Alternative 4 would also be implemented under Alternative 7.

Residual Impacts and Unavoidable Adverse Effects

Residual impacts after mitigation of Alternative 7 would be identical to those of Alternative 4. Alternative 7 would have temporary and unavoidable adverse VOC, CO, NOx, and PM10 impacts during construction. Unlike construction, Alternative 7 operation would not have any unavoidable adverse effects as the operation/maintenance activities required for Alternative 7 would be minimal. Decommissioning of Alternative 7 would require activities that are similar to construction, but the impacts would be less than construction impacts since it is likely that equipment engine technology would be more advanced and fuel would be cleaner at the time of decommissioning.

4.2.10 Alternative A – No Gen-Tie

Under Alternative A, the proposed gen-tie line would not be constructed. There would be no disturbance of the ground at the tower locations and pull sites, no disturbance of desert vegetation and habitat, and no installation of transmission equipment. Therefore, the construction, operation, and decommissioning impacts associated with the gen-tie line would not occur.

4.2.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Alternative B would utilize transmission infrastructure developed for First Solar's Desert Sunlight Solar Farm Project by sharing the approved transmission towers. Stringing of the project owner's gen-tie line would commence occur over an estimated 12 months. However, since this construction had not yet begun in September 2011 on the previously-approved towers, this analysis assumes that Alternative B would require all related construction activities.

Construction

Construction of Alternative B would cause both temporary and permanent disturbance within a construction corridor estimated at a width of 160 feet, plus additional fan-shaped areas at each turn in the alignment with radii of 450 feet needed for wire stringing. The permanent disturbance associated with Alternative B would be limited to the foundations of the transmission structures, the footprint of the access road, and two 75-foot by 200-foot areas associated with each fan-shaped stringing area, as described previously.

Direct Effects

Construction of Alternative B would result in emissions of the following air pollutants: VOCs, NOx, CO, PM10, PM2.5, and SOx.

Emissions from construction would result from fuel combustion and exhaust from construction equipment and vehicle traffic, grading, and use of polluting building materials (e.g., paints and lubricants). Fugitive dust emissions would be generated from earth moving activities such as

dozing, grading and material loading/handling, and vehicle trips on paved/unpaved roads. Land disturbance during construction would also result in generation of fugitive dust due to wind erosion. Emissions are estimated based on following assumptions and project schedule provided by the Applicant:

- Emissions are estimated based on the construction equipment provided by the Applicant.
- The number of on-road truck trips and the number of construction employee trips are provided by the Applicant.
- Average number of construction workers would be 30 with the maximum of 65 construction workers during peak days.
- Construction workers could commute from housing centers in the Mojave Desert Air Basin, such as Blythe, or outside the project study area, such as Palm Springs. To account for worker trips that may extend to the boundary of the air basin, the maximum length would be an estimated 75 miles for each one-way trip for each employee vehicle. The origin of the raw materials was not specified by the Applicant and therefore assumed to require a one-way trip of 75 miles. Emissions for travel over greater distances would be outside the project study area.

Project construction emissions are estimated using California Emissions Estimator Model (CalEEMod, ver. 2011.1.1). Tables 4.2-7 and 4.2-8 summarize the daily and annual mitigated construction air emissions. Table 4.2-7 compares the maximum mitigated daily construction emissions with the recommended SCAQMD thresholds of significance as shown in Table 4.2-1.

Table 4.2-7. Mitigated Daily Construction Emissions (lbs/day), Alternative B – Proposed Gen-Tie (Shared Towers)

	VOC	NOx	CO	PM10	PM2.5	SO_2
Month 1-4	24.35	135.93	156.20	8.40	8.40	0.3
Month 5-12	21.81	123.48	144.18	7.92	7.92	0.3
Thresholds	75	100	550	150	55	150

Note: Maximum daily construction emissions could be higher on certain days with more construction employees than the average number of construction employees
Source: See Appendix D for detailed modeling assumptions and emission estimates.

Table 4.2-8. Mitigated Annual Construction Emissions (tons/year), Alternative B – Proposed Gen-Tie (Shared Towers)

	VOC	NOx	CO	PM10	PM2.5	SO_2
Month 1-4	0.65	3.48	4.79	0.20	0.20	0.01
Month 5-12	0.30	1.61	2.26	0.10	0.10	0.00
Total	0.95	5.09	7.05	0.30	0.30	0.01

Source: See Appendix D for detailed modeling assumptions and emission estimates.

Mitigation Measures AIR-1 (Fugitive Dust Control Plan) and MM AIR 2 (Control On-Site Emissions) would mitigate dust and NOx emissions from construction of Alternative B to the extent feasible. Mitigated maximum daily emissions are estimated to be below the thresholds for all criteria pollutants, except for daily NOx emissions, as presented in Table 4.2-7. For all crite-

ria pollutants, construction emissions associated with gen-tie line construction would be lower than those associated with the solar project construction. Therefore, the mitigated impacts of Alternative B on sensitive receptors and visibility would be substantially less than those described for Alternative 4.

Indirect Effects

There would be no indirect effects associated with Alternative B during construction.

Operation and Maintenance

DHSP operations and maintenance personnel would perform periodic maintenance of the Gen-tie line, and no additional personnel would be required. Operation and maintenance of the proposed project gen-tie line would involve periodic inspection via helicopter or truck. Gen-tie line maintenance activities that would be performed by trucks are included as part of the activity assumptions for DHSP (Alternative 4). The trans-mission lines would be maintained on an as-needed basis and would include maintenance of access roads and erosion/drainage control structures.

Direct Effects

It is assumed that activity to support operation of Alternative 4 would include all necessary operation/maintenance vehicle trips required for Alternative B. No additional personnel would be required for Alternative B; therefore no additional impacts beyond those described with respect to the operation and maintenance of Alternative 4 would occur.

Indirect Effects

No additional personnel would be required for Alternative B; therefore no impacts would occur.

Decommissioning

At the end of the life of Alternative B, equipment and facilities would be removed and demolished, and the site would be returned to its original condition.

Direct Effects

Equipment used for decommissioning would generally be similar to that used for construction. Because decommissioning would occur after serving at least 30 years, it is likely that equipment engine technology would be more advanced and fuel would be cleaner. Additionally, mitigation measures that are similar to those identified for Alternative 4 construction would also be implemented during decommissioning. Therefore, criteria pollutant emissions during decommissioning of Alternative B would be significantly less than the emissions estimated for construction of Alternative B. While criteria pollutant emissions associated with decommissioning would be less than the estimated project construction emissions, it is difficult to determine the impacts of project decommissioning due to uncertainties of air quality conditions, visibility, and federal and state regulatory standards in the future.

Indirect Effects

There would be no indirect effects associated with Alternative B during decommissioning.

Mitigation Measures

The measures identified for Alternative 4 would also be implemented under Alternative B.

Residual Impacts and Unavoidable Adverse Effects

Mitigation Measures AIR-1 (Fugitive Dust Control Plan) and MM AIR-3 (Control Operational Fugitive Dust) would mitigate particulate matter emissions during construction and operation to the maximum extent feasible. Mitigation Measures AIR-2 (Control On-Site Emissions) and MM AIR-4 (Control Equipment Emissions) would mitigate DPM and NOx emissions to the extent feasible by requiring use of newer equipment and other strategies like electrification of equipment. Nonetheless, Alternative B would have temporary and unavoidable adverse NOx impacts during construction. Alternative B operation would not have any unavoidable adverse effects as the operation/maintenance activities required for Alternative B would be minimal. Decommissioning of Alternative B would require activities that are similar to construction, but criteria pollutants emissions would be less than construction emissions since it is likely that equipment engine technology would be more advanced and fuel would be cleaner at the time of decommissioning. While criteria pollutant emissions associated with decommissioning would be less than the estimated project construction emissions, it is difficult to determine the impacts of project decommissioning due to uncertainties of air quality conditions, visibility, and federal and state regulatory standards in the future

4.2.12 Alternative C – Separate Transmission Towers within Same ROW

The Alternative C gen-tie line would parallel the approved Desert Sunlight gen-tie line, and would be located on separated towers within the same Desert Sunlight Solar Farm Project's ROW. The same number of towers in a nearly identical alignment to that of the Desert Sunlight Solar Farm project's gen-tie line would be constructed.

Construction

Construction activities required under Alternative C would be essentially the same as those required under Alternative B.

Direct Effects

Alternative C construction would require essentially the same equipment for the new tower installation in the same ROW as required under Alternative B. Therefore, Alternative C construction would generate essentially the same emissions as Alternative B and air quality impacts under Alternative C would be essentially the same as those impacts under Alternative B. Mitigation Measures AIR-1 (Fugitive Dust Control Plan) and MM AIR 2 (Control On-Site Emissions) would mitigate dust and NOx emissions from construction of Alternative C to the extent feasible.

Indirect Effects

There would be no indirect effects associated with Alternative C during construction.

Operation and Maintenance

DHSP operations and maintenance personnel would perform periodic maintenance of the gen-tie line, and no additional personnel would be required. Operation and maintenance of the gen-tie line would involve periodic inspection via helicopter or truck. The trans-mission lines would be maintained on an as-needed basis and would include maintenance of access roads and erosion/ drainage control structures.

Direct Effects

It is assumed that activity to support operation of Alternative 4 would include all necessary operation/maintenance vehicle trips required for Alternative C. No additional personnel would be required for Alternative C; therefore no impacts would occur.

Indirect Effects

No additional personnel would be required for Alternative C; therefore no impacts would occur.

Decommissioning

Decommissioning under Alternative C would be essentially to same as decommissioning under Alternative B.

Direct Effects

Required decommissioning activities and equipment under Alternative C would be similar to those described under Alternative B. Impacts during decommissioning of Alternative C would be essentially the same as decommissioning impacts under Alternative B.

Indirect Effects

There would be no indirect effects associated with Alternative C during decommissioning.

Mitigation Measures

The measures identified for Alternative 4 would also be implemented under Alternative C.

Residual Impacts and Unavoidable Adverse Effects

Alternative C would have temporary and unavoidable adverse NOx impacts during construction. Alternative C operation would not have any unavoidable adverse effects as the operation/maintenance activities required for Alternative C would be minimal. Decommissioning of Alternative C would require activities that are similar to construction, but criteria pollutants emissions would be less than construction emissions since it is likely that equipment engine technology would be more advanced and fuel would be cleaner at the time of decommissioning. While criteria pollutant emissions associated with decommissioning would be less than the estimated project construction emissions, it is difficult to determine the impacts of project decommissioning due to uncertainties of air quality conditions, visibility, and federal and state regulatory standards in the future,

4.2.13 Alternative D – Cross-Valley Alignment

Construction, operation, and maintenance of Alternative D would be identical to that described for Alternative C, except it would require slightly less temporary and permanent ground disturbance.

Construction

Construction activities required under Alternative D would be essentially the same as those required under Alternative B.

Direct Effects

Under Alternative D, construction equipment usage would be essentially the same as Alternative B; therefore impacts associated with air quality under Alternative D would be identical to those impacts under Alternative B. Mitigation Measures AIR-1 (Fugitive Dust Control Plan) and MM AIR 2 (Control On-Site Emissions) would mitigate dust and NOx emissions from construction of Alternative D to the extent feasible.

Indirect Effects

There would be no indirect effects associated with Alternative D during construction.

Operation and Maintenance

DHSP operations and maintenance personnel would perform periodic maintenance of the gen-tie line, and no additional personnel would be required. Operation and maintenance of the gen-tie line would involve periodic inspection via helicopter or truck. The trans-mission lines would be maintained on an as-needed basis and would include maintenance of access roads and erosion/ drainage control structures.

Direct Effects

It is assumed that activity to support operation of Alternative 4 would include all necessary operation/maintenance vehicle trips required for Alternative D. No additional personnel would be required for Alternative D; therefore no impacts would occur.

Indirect Effects

No additional personnel would be required for Alternative D; therefore no impacts would occur.

Decommissioning

Decommissioning under Alternative D would be essentially to same as decommissioning under Alternative B.

Direct Effects

Required decommissioning activities and equipment under Alternative D would be similar to those described under Alternative B; therefore impacts during Alternative D decommissioning would similar to decommissioning impacts under Alternative B.

Indirect Effects

There would be no indirect effects associated with Alternative D during decommissioning.

Mitigation Measures

The measures identified for Alternative 4 would also be implemented under Alternative D.

Residual Impacts and Unavoidable Adverse Effects

Alternative D would have temporary and unavoidable adverse NOx impacts during construction. Alternative D operation would not have any unavoidable adverse effects as the operation/maintenance activities required for Alternative D would be minimal. Decommissioning of Alternative D would require activities that are similar to construction, but criteria pollutants emissions would be less than construction emissions since it is likely that equipment engine technology would be more advanced and fuel would be cleaner at the time of decommissioning. While criteria pollutant emissions associated with decommissioning would be less than the estimated project construction emissions, it is difficult to determine the impacts of project decommissioning due to uncertainties of air quality conditions, visibility, and federal and state regulatory standards in the future.

4.2.14 Alternative E – New Cross-Valley Alignment

Construction, operation, and maintenance of Alternative E would be identical to that described for Alternative C, except it would require slightly less temporary and permanent ground disturbance. However, because it would require new access routes for the transmission line, Alternative D would require about 3,700 cubic yards of aggregate. Another 2,000 cubic yards of aggregate would be required for the gen-tie staging area, which would be located along the ROW.

Construction

Construction activities required under Alternative E would be essentially the same as those required under Alternative B.

Direct Effects

Under Alternative E, construction equipment usage would be essentially the same as Alternative B. Therefore impacts associated with air quality under Alternative E would be identical to those impacts under Alternative B. Mitigation Measures AIR-1 (Fugitive Dust Control Plan) and MM AIR 2 (Control On-Site Emissions) would mitigate dust and NOx emissions from construction of Alternative D to the extent feasible.

Indirect Effects

There would be no indirect effects associated with Alternative E during construction.

Operation and Maintenance

DHSP operations and maintenance personnel would perform periodic maintenance of the Gen-tie line, and no additional personnel would be required. Operation and maintenance of the proposed project gen-tie line would involve periodic inspection via helicopter or truck. The trans-

mission lines would be maintained on an as-needed basis and would include maintenance of access roads and erosion/drainage control structures.

Direct Effects

It is assumed that activity to support operation of Alternative 4 would include all necessary operation/maintenance vehicle trips required for Alternative E. No additional personnel would be required for Alternative E; therefore no impacts would occur.

Indirect Effects

No additional personnel would be required for Alternative E; therefore no impacts would occur.

Decommissioning

Decommissioning under Alternative E would be essentially to same as decommissioning under Alternative B.

Direct Effects

Required decommissioning activities and equipment under Alternative E would be similar to those described under Alternative B; therefore impacts during Alternative E decommissioning would similar to decommissioning impacts under Alternative B.

Indirect Effects

There would be no indirect effects associated with Alternative E during decommissioning.

Mitigation Measures

The measures identified for Alternative 4 would also be implemented under Alternative E.

Residual Impacts and Unavoidable Adverse Effects

Alternative E would have temporary and unavoidable adverse NOx impacts during construction. Alternative E operation would not have any unavoidable adverse effects as the operation/maintenance activities required for Alternative E would be minimal. Decommissioning of Alternative E would require activities that are similar to construction, but criteria pollutants emissions would be less than construction emissions since it is likely that equipment engine technology would be more advanced and fuel would be cleaner at the time of decommissioning. While criteria pollutant emissions associated with decommissioning would be less than the estimated project construction emissions, it is difficult to determine the impacts of project decommissioning due to uncertainties of air quality conditions, visibility, and federal and state regulatory standards in the future.

4.2.15 Cumulative Effects

Geographic Scope

The geographic scope for air quality cumulative impacts is a 6-mile radius for regionally based impacts and a one-mile radius for sensitive receptor impacts based on the nature and extent of these impacts. For purposes of this analysis, only projects that are scheduled concurrently in the

same area as the project are considered to be reasonably foreseeable future projects that could, in conjunction with the project, contribute to cumulative impacts.

Table 4.2-9. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Air Resources	Six-mile radius around project site	VOC, NOx, CO, PM10, and PM2.5	• Eagle Mountain Pumping Plant • Chuckwalla Valley Raceway • Eagle Mountain Pumped Storage Project • Desert Sunlight Solar Farm Project • Eagle Mountain Wind Project Met Towers • Sol Orchard • Silverado Power Project

Past, Present, and Reasonably Foreseeable Future Projects

There are two existing projects and five foreseeable projects within a 6-mile radius of the project site area. The existing projects include the Eagle Mountain Pumping Plant and the Chuckwalla Valley Raceway. The projects under development include Eagle Mountain Pumped Storage Project, Desert Sunlight Solar Farm Project, Eagle Mountain Wind Project Met Towers, Sol Orchard and Silverado Power Project.

Cumulative Effects Analysis

The timing for approval and construction of the Sol Orchard, and Eagle Mountain Wind Project Met Towers is not known, but it could overlap with part of the construction period for the DHSP. Construction of the Eagle Mountain Pumped Storage Project is expected to start in 2012 and would continue to occur over a 4-year period. Preliminary construction activities for the Desert Sunlight Solar Farm project started in September 2011, and its construction will continue to occur over a 2-year period. Therefore, construction of the DHSP would occur concurrently with construction of the Eagle Mountain Pumped Storage Project, the Desert Sunlight Solar Farm project, and possibly the Sol Orchard and Eagle Mountain Wind Project. Regarding projects further than 6-miles, it is anticipated that construction of the Eagle Mountain Landfill Project and Silverado Power Project would occur after DHSP's construction.

Analyses show that construction emissions during construction of the Desert Sunlight Solar Farm project would exceed the SCAQMD daily thresholds of significance for VOC, NOx, CO, PM10 and PM2.5 resulting in an unavoidable adverse impact (BLM 2011). Similarly, construction emissions from the Eagle Mountain Pumped Storage project are also expected to result in an unavoidable adverse NOx impacts. These construction emissions combined with those from the DHSP (Alternatives 4 through 7 and Alternatives C through E) would be expected to contribute to temporary adverse cumulative regional air quality impacts. Sensitive receptors would be affected by temporary and unavoidable adverse impacts from construction of the proposed project and other cumulative projects. Because construction at the proposed solar facility site would be well over 6,500 feet from the nearest residence and more than 1.8 miles from other identified sensitive receptors (residences, schools, and JTNP), and construction emissions would

cease upon operation, adverse effects of cumulative projects would not substantially overlap at sensitive receptors.

As described above, the nearest federal Class I area, JTNP, is located 1.8 miles away from the project site. It is expected that cumulative PM10 and PM2.5 emissions would result in a temporary unavoidable adverse impacts during construction, consequently impacts on visibility due to airborne dust would likely be adverse. However, the sources of emissions during construction would occur near the ground level, where dust would have a limited ability to notably affect distant vistas, and emissions would be widely dispersed across the project site. The ground level release and intermittent nature of construction sources ensures that the concentration near the JTNP would be much lower than the localized effects near the project site. Additionally, all cumulative projects are anticipated to avoid visible plumes as required by SCAQMD Rule 403 and implement additional mitigation measures where needed to control dust emissions. Therefore, the DHSP and other cumulative projects would not result in an adverse cumulative effect on visibility.

Once construction of projects under development and the DHSP is completed, operational cumulative impacts would include operation emissions of these projects in addition to operating emissions of existing cumulative sources. However, it should be noted that Kaiser Mine is no longer operational; therefore, it would not contribute to cumulative emissions. None of these facilities has a major stationary emission source. Additionally, four of these projects under development, like the proposed project, are solar energy facilities with no notable stationary emission sources. Due to the limited emission sources associated with these facilities, the cumulative impacts on visibility would be negligible and operation of the project would not result in an unavoidable cumulative adverse effect.

The No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. In addition, Alternative B would not contribute to cumulative air quality effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

4.2.16 CEQA Considerations

CEQA Significance Criteria

The indicators listed below were used to determine the significance of potential impacts to air resources under CEQA. They are based on the significance criteria for air quality listed in the CEQA Environmental Checklist, Appendix G of the CEQA Guidelines, which state that a project would have a significant impact on air quality if it would:

AR-1 Conflict with or obstruct implementation of the applicable air quality plan;

AR-2 Violate any air quality standard or contribute to an existing or projected air quality violation;

AR-3 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air

quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);

AR-4 Expose the public (especially schools, day care centers, hospitals, retirement homes, convalescence facilities and residences) to substantial pollutant concentrations;

AR-5 Create objectionable odors affecting a substantial number of people.

Specifically, implementation of the project would have a significant impact on air quality if it would exceed any of the SCAQMD thresholds of significance presented in Table 4.2-1.

CEQA Significance Determination

Alternatives 1, 2, 3, and A would not involve construction of the project or gen-tie line. These alternatives would have no impacts on air resources.

Alternative 4

AR-1 The SCAQMD is the agency with principal responsibility for air quality attainment planning in the portion of the MDAB surrounding the project site. The project site area is attainment for all federal air quality standards, so for the MDAB portion of SCAQMD's jurisdiction there are no federal planning requirements. However, this area is also non-attainment for state ozone and PM10 standards, where there are state planning requirements for ozone, but not PM10, attainment. SCAQMD has adopted 2007 Air Quality Management Plan (SCAQMD 2007) and 2003 Air Quality Management Plan (SCAQMD 2003) and these plans include recommendations for measures to control ROG/VOC and NOx emissions generated from stationary and mobile sources. The DHSP would implement Mitigation Measure AIR-2 to mitigate NOx emissions in conformance with the SCAQMD ozone plan. Implementation of Mitigation Measures AIR-2 would ensure that the project conforms to the SCAQMD Air Management Plan and that the DHSP would have less-than-significant impacts after mitigation.

AR-2 As shown in Table 4.2-3, construction emissions of VOC, CO, NOx, and PM10 during construction would exceed the SCAQMD thresholds even after implementing Mitigation Measures AIR-1 and AIR-2, and these emission levels could cause localized exceedances, or contribute significantly to existing exceedances, of the State or federal air quality standards. Therefore, the proposed project would have temporary significant and unavoidable NOx and PM10 impacts during construction.

AR-3 Implementation of Mitigation Measures AIR-1 and AIR-2 would reduce fugitive dust emissions and engine NOx emissions. However, as shown above in Table 4.2-3 the daily construction VOC, CO, NOx, PM10 and PM2.5 emissions would exceed the SCAQMD thresholds, resulting in a cumulatively considerable net increase of VOC, CO, NOx, PM10 and PM2.5 during project construction. Therefore, the DHSP would have temporary significant and unavoidable NOx and PM10 impacts during construction.

AR-4 Sensitive receptors would be affected by emissions generated during the project construction as construction emissions for VOC, CO, NOx, and PM10would exceed the

SCAQMD threshold of significance as presented in Table 4.2-3. The high level of VOC, CO, NOx, and PM10 emissions would have the potential to create temporary unavoidable significant impacts; however, since construction activity at the proposed solar facility site would be well over 6,500 feet from the nearest residence, impacts on sensitive receptors would be less than significant. These impacts on residential receptors would vary depending on the location, level, and type of activity, the silt content of the soil, and the prevailing weather. The nearest boundary of the JTNP is located 1.8 miles to the northeast, which would be a sufficient distance from the project site to ensure that users of the JTNP do not experience significant localized concentrations of emissions.

AR-5 The project would not include any notable source of odors except for use of diesel-fueled construction equipment and small quantities of coatings that include organic compounds. Construction odors would be temporary, would be limited by mandatory use of ultra-low sulfur diesel fuel, and would only occur within the project site, and so would not negatively affect a substantial number of people. Therefore, the odor impacts from the project construction are less than significant.

Operation and Maintenance

AR-1 The DHSP does not include any major stationary emission sources and only requires minimal operation activities. In addition, the DHSP would implement Mitigation Measures AIR-3 and AIR-4 to mitigate NOx and particulate matter emissions during operation. Therefore, the operation of the project would not conflict with or obstruct implementation of the SCAQMD air quality plans.

AR-2 As shown in Table 4.2-5, operation emissions for all criteria pollutants would remain well under the applicable thresholds of significance. Such levels of emissions should not cause localized exceedances, or contribute significantly to existing exceedances, of the State or federal air quality standards. Therefore, the proposed project would have less-than-significant impacts on air quality standard attainment during operation.

AR-3 Operation of the DHSP would result in substantially lower emissions than project construction and would be well below the SCAQMD thresholds of significance (see Table 4.2-5). Therefore, project's operation emissions would not result in cumulatively considerable net increases of nonattainment pollutants and would have less-than-significant impacts to regional air quality.

AR-4 As shown in Table 4.2-5 and Table 4.2-6, operation emissions of the DHSP are minimal after implementation of mitigation measures AIR-3 and AIR-4, so the project would have less-than-significant impacts to area receptors during operation.

AR-5 Operation of the DHSP would not include any notable sources of odors. Therefore, the odor impacts from the project operation are less than significant.

Decommissioning

AR-1 It can be assumed that the decommissioning activities will be conducted in a manner that would conform to the requirements of applicable air quality plans, if any exist, at the time of project decommissioning. However, applicable regulatory standards and

air quality plans are likely to be more stringent than current standards and plans, and overall air quality may be worse in 30 years if future development proceeds.

AR-2 The magnitude of decommissioning emissions are expected to be significantly less than those estimated for project construction since decommissioning would occur after at least 30 years of operation, and it is expected that on-road and off-road equipment engine technology would be far more advanced and cleaner than is currently the case. Additionally, the level of activity needed to decommission the solar panels is less than the level of activity needed to construct the solar panels and can be done at a more leisurely pace than construction. Although the ambient air quality attainment status for the project area and visibility conditions at the time of project decommissioning are unknown, decommissioning emissions of the DHSP are not expected to cause or significantly contribute to any air quality violations, and would have less-than-significant impacts on air quality standard attainment.

AR-3 Due to the reduced activity, and expected reduced emission profile of vehicles when decommissioning would occur, is anticipated that decommissioning emissions of the DHSP can be kept below the SCAQMD CEQA significance thresholds. Therefore, project's decommissioning emissions would not result in cumulatively considerable net increases of nonattainment pollutants and would have less-than-significant impacts to regional air quality.

AR-4 Any receptors located near to the DHSP would have increased air pollutant exposures from project decommissioning; however, as noted above, the level of emissions during decommissioning are expected to be substantially lower than those from project construction, and during decommissioning the project owner would have to comply with District rules and regulations and imposed Mitigation Measure AIR-3 that address fugitive dust control. Therefore, the air quality impacts resulting from project decommissioning to the public, including sensitive receptors, are expected to be less than significant.

AR-5 Decommissioning activity would not include any notable source of odors except for use of diesel-fueled equipment within the project site. Odors would not negatively affect a substantial number of people. Therefore, the odor impacts from the project decommissioning would be less than significant.

Alternative 5

Significance Criteria AR-1 through AR-5 would be the same for Alternative 5 as for Alternative 4 as discussed in Section 4.2.7. The same mitigation measures would apply as appropriate.

Alternative 6

Significance Criteria AR-1 through AR-5 would be the same for Alternative 6 as for Alternative 4 as discussed in Section 4.2.8. The same mitigation measures would apply as appropriate.

Alternative 7

Significance Criteria AR-1 through AR-5 would be the same for Alternative 7 as for Alternative 4 as discussed in Section 4.2.8. The same mitigation measures would apply as appropriate.

Alternative B

Significance Criteria AR-1 through AR-5 would be the essentially same for Alternative B as for Alternative 4 as discussed in Section 4.2.11. However, for Alternative B, mitigated maximum daily emissions would be below the thresholds for all criteria pollutants except for daily NOx emissions. Therefore for construction emissions, Alternative B would result in temporary significant and unavoidable NOx impacts during construction for AR-2 and AR-3 and would not result in temporary significant and unavoidable PM10 impacts for AR-2 and AR-3. The same mitigation measures would apply as appropriate.

Alternative C

Significance Criteria AR-1 through AR-5 would be essentially the same for Alternative C as for Alternative B as discussed in Section 4.2.12. The same mitigation measures would apply as appropriate.

Alternative D

Significance Criteria AR-1 through AR-5 would be essentially the same for Alternative D as for Alternative B as discussed in Section 4.2.13. The same mitigation measures would apply as appropriate.

Alternative E

Significance Criteria AR-1 through AR-5 would be essentially the same for Alternative E as for Alternative B as discussed in Section 4.2.14. The same mitigation measures would apply as appropriate.

Cumulative Impacts

Cumulative impacts are described in Section 4.2.15. As discussed therein, the contribution of the proposed project and alternatives to a cumulative air quality impact would be less than considerable under CEQA.

4.3 BIOLOGICAL RESOURCES – VEGETATION

4.3.1 Methodology for Analysis

This analysis is based on information from the focused rare plant surveys, vegetation mapping, reconnaissance surveys, and jurisdictional delineations conducted for the proposed project and alternatives and survey results from the adjacent Desert Sunlight Solar Farm Project, as well as information found in the California Natural Diversity Database (CNDDB), California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants (8th Edition), Consortium of California Herbaria (CCH), and lists of special-status species for the region (see Chapter 3.3 for details).

Impact analyses typically characterize effects to vegetation communities as temporary or permanent. Permanent impacts generally refer to areas to be paved or otherwise precluded from most natural habitat function throughout the life of a proposed project. Temporary impacts generally refer to areas to be disturbed during project construction, but allowed to return to a more natural condition after initial construction disturbance or actively revegetated. Mitigation ratios for temporary impacts may be less than those for permanent impacts, especially if revegetation or ecological restoration is employed. In desert ecosystems, the interpretation of permanent and temporary impacts needs to reflect the slow recovery rates of native plant communities. Natural recovery rates from disturbance in desert ecosystems depend on the nature and severity of the impact. For example, creosote bushes can re-sprout a full canopy within five years after crushing by heavy vehicles (Gibson et al. 2004), whereas more severe damage involving vegetation removal and soil disturbance can take from 50 to 300 years for partial recovery and complete ecosystem recovery may require over 3,000 years (Lovich and Bainbridge 1999). In this analysis, an impact that might be considered temporary in other parts of California will be considered long-term or permanent due to these very slow natural recovery rates.

Direct and indirect impacts of each action alternative to vegetation and jurisdictional areas are discussed in Sections 4.3.4 through 4.3.15. The analysis of direct and indirect impacts covers construction, operations and maintenance (O&M), and decommissioning for each action alternative. Direct effects include the direct or immediate effects of the project on a species or its habitat. Examples of direct impacts to vegetation and jurisdictional areas include damage to or removal of special-status plants; loss or degradation of native plant communities or jurisdictional areas; and interference with photosynthetic processes and/or plant reproduction from dust or shading. Indirect effects include those effects that are caused by or will result from the project and are later in time or farther removed in distance, but are still reasonably certain to occur. Examples of indirect effects to vegetation and jurisdictional areas include erosion, sedimentation, and introduction of invasive species by various vectors or conditions that compete with native species and can result in habitat degradation.

4.3.2 Summary of Impacts

A summary of the overall acreages of disturbance by plant community and jurisdictional areas associated with each alternative is provided in Tables 4.3-1 and 4.3-2. Acreages calculated for impacts were based on the best project information available at the time of publication of this document. Minor changes to these acreages may occur as the project undergoes final engineering, but substantial changes to acreages reported below would not be expected. These acreages

are based on information provided by Applicant regarding construction of each project component, and mapping of vegetation and jurisdictional areas described in Section 3.3.

Table 4.3-1. Summary Comparison of Action Alternatives – Solar Project Site Alternatives

	Permanent and Long-Term Impacts (acres)			
Resource	**Alternative 4: Proposed Solar Project**	**Alternative 5: Solar Project Excluding WHMA**	**Alternative 6: Reduced Footprint Solar Project**	**Alternative 7: High-Profile Reduced Footprint Solar Project**
Creosote Bush Scrub (Sonoran Desert Scrub)	1,026	980	944	944
Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland)	180	179	98	98
Previously Disturbed Areas	2	2	2	2
Total Permanent and Long-Term Disturbance*	**1,208**	**1,161**	**1,044**	**1,044**
CDFG Jurisdictional Streambeds	113	110	79	79
Total CDFG Jurisdictional Areas	**258.5**	**254.4**	**163.5**	**163.5**

*CDFG jurisdictional streambeds overlap with plant communities; therefore, total is not a sum of the above acreages.

Table 4.3-2. Summary Comparison of Action Alternatives – Gen-Tie Alternatives[1]

	Permanent and Long-Term Impacts (acres)			
Resource	**Alternative B: Proposed Gen-Tie – Shared Towers**	**Alternative C: Separate Transmission Towers Within Same ROW**	**Alternative D: Cross-Valley Alignment**	**Alternative E: New Cross-Valley Alignment**
Creosote Bush Scrub (Sonoran Desert Scrub; Bajada/Alluvial Landforms)	41	41	20	5
Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland)[2]	51	51	39	60
Previously Disturbed Areas	0	0	27	0
Creosote Bush Scrub (Sonoran Desert Scrub; Partially Stabilized Sandfields)	0	0	0	13
Active Sand Dunes	0	0	0	7
Total Permanent and Long-Term Impacts	**92**	**92**	**86**	**85**

1 - Estimated acreage, based on proportion of alignment within each vegetation type, and the estimated disturbance acreage provided by the Applicant for each alternative.

2 - Blue Palo Verde–Ironwood Woodlands also meet CDFG jurisdictional criteria as riparian vegetation adjacent to jurisdictional streambeds.

4.3.3 Applicant Measures

The Applicant has provided several measures as part of the project description that would be implemented during construction, operation, and/or decommissioning to reduce potential impacts to vegetation. In some cases, mitigation measures further clarify or expand on AM reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures imposed and the following AMs, the mitigation measures take precedence.

Applicant Measures identified by the Applicant to reduce impacts to vegetation include the following:

AM BIO-1 **Habitat Compensation Plan**. A Habitat Compensation Plan is being prepared and will be implemented by the Applicant to compensate for the loss of creosote desert scrub, desert dry wash woodland, and jurisdictional resources. Compensation will be accomplished by acquisition of mitigation land or conservation easements or by providing funding for specific land acquisition, endowment, restoration, and management actions under one of several programs, such as the recently approved mitigation program created by AB 13. The Habitat Compensation Plan will be reviewed and approved by BLM, United States Fish and Wildlife Service (USFWS), and the California Department of Fish and Game (CDFG). The precise details of the mitigation, including mitigation ratios, will be established in the BLM Right-of-Way (ROW) grant, USFWS Biological Opinion, and any CDFG 2081 Incidental Take Permit or CDFG 2080.1 Consistency Determination.

AM BIO-2 **Integrated Weed Management Plan.** A Draft Integrated Weed Management Plan (IWMP) will be prepared pursuant to BLM's Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (BLM 2007) and the National Invasive Species Management Plan (NISC 2008), and will be implemented by the Applicant to reduce the potential for the introduction of invasive species during construction, operation and maintenance, and decommissioning of the project. The draft plan will be reviewed and approved by the BLM.

AM BIO-3 **Pre-construction Surveys for Special-Status Plant Species and Cacti.** Before construction, the Applicant will stake and flag the construction area boundaries, including the construction areas for the solar farm site and gen-tie line; construction laydown, parking, and work areas; and the boundaries of all temporary and permanent access roads. A BLM-approved biologist will then survey all areas of proposed ground disturbance for special-status plant species and cacti during the appropriate blooming period for those species having the potential to occur in the construction areas. All special-status plant species and cacti observed will be flagged for transplantation. All cacti observed will be flagged for transplantation and special-status plant species observed will be flagged for salvage.

AM BIO-4 **Worker Environmental Awareness Program (WEAP).** The Applicant will implement a WEAP to educate on-site workers about sensitive environmental issues associated with the project. The WEAP will be administered to all on-site personnel including surveyors, construction engineers, employees, contractors, contractor's employees, supervisors, inspectors, subcontractors, and delivery personnel. The program will be implemented during site mobilization, ground disturbance, grading, construction, operation, and closure. BLM will be responsible for ensuring that each construction worker at the site, throughout the duration of construction activities, receives the above training.

AM BIO-5 **Vegetation Resources Management Plan.** The Applicant will prepare and implement a Vegetation Resources Management Plan that contains the following components:

- A *Vegetation Salvage Plan* which discusses the methods that will be used to transplant cacti present within the project locations following BLM's standard operating procedures, as well as methods that will be used to transplant special-status plant species that occur in the project locations if feasible.
- A *Restoration Plan* which discusses the methods that will be used to restore Creosote Bush Scrub and Desert Dry Wash Woodland Habitat that is temporarily disturbed by construction activities.
- The *Vegetation Salvage Plan* and *Restoration Plan* will specify success criteria and performance standards. BLM will be responsible for reviewing and approving the plan and for ensuring that the Applicant implements the plan including maintenance and monitoring required in the plan.

4.3.4 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the California Desert Conservation Area (CDCA) Plan. As a result, the proposed solar energy project would not be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, no impacts from the DHSP would occur and the project sites would continue to be affected by current uses.

4.3.5 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the proposed Desert Harvest Solar Project (DHSP) would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.3.6 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the proposed Desert Harvest Solar Project (DHSP) would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.3.7 Alternative 4 – Proposed Solar Project

Alternative 4 is the Applicant's proposed solar project, which would be a 150-MW, nominal capacity, alternating current (AC), solar photovoltaic (PV), energy-generating project. The project consists of a main generation area, O&M facility, on-site substation, switchyard, site security,

on-site water-storage ponds (during the construction phase), one on-site evaporation pond, a well, and a 220-kilovolt (kV) generation interconnection line. The project would be located on 1,208 acres, and would be comprised of two separate parcels separated by a desert wash. The northern parcel would be 1,053 acres and the southern parcel would be 155 acres. Figure 2-2 in Appendix A illustrates Alternative 4.

Construction

Project construction, including construction methods, equipment, scheduling, and phasing, are described in Chapter 2. Most construction impacts to vegetation resources would occur during Phases 2 and 3 (September 2013 to May 2015), which would include site fencing, installation of temporary power, site grading and preparation, and other facilities.

Construction would generally occur between 7 a.m. and 7 p.m., Monday through Friday, but construction during additional hours may be necessary at times.

Direct Effects

Construction activities associated with Alternative 4 would directly affect vegetation, special-status plants, and state jurisdictional resources through the long-term and permanent loss and degradation of native vegetation and its habitat values, loss of special-status plants, and loss or alteration of state jurisdictional streambeds and associated habitat values. These effects are discussed in detail below, and mitigation measures to reduce the severity of these effects are presented at the end of this section.

Native Vegetation Including Sensitive Natural Communities. Site preparation and construction at the proposed solar facility would consist of removing vegetation where necessary, such as along the access roads, and crushing or mowing vegetation taller than 18 inches throughout the remainder of the site. It is the Applicant's goal to minimize vegetation removal and soil surface disturbance during construction. Annual plants and smaller perennials may remain in place where compatible with project construction. Overall impacts of project construction would cause substantial degradation to native vegetation and wildlife habitat. Project construction would result in permanent and long-term adverse impacts to 1,206 acres of natural vegetation, including 1,026 acres of Creosote Bush Scrub (Sonoran Desert Scrub) and 180 acres of Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland).

Construction traffic and related activities would cause increased soil erosion on the site. Aeolian (wind) transport of dust and sand can degrade soil and vegetation over a widening area, and would affect off-site vegetation (Okin et al. 2001). Dust can have deleterious physiological effects on plants and may affect their productivity and nutritional qualities (Sharifi et al. 1997). Windblown dust and sand can kill plants by burial and abrasion, interrupt natural processes of nutrient accumulation, and damage off-site soil resources. The destruction of plants and soil crusts by windblown sand and dust exacerbates the erodibility of the soil and accelerates the loss of nutrients (Okin et al. 2001).

The project's direct adverse impacts to vegetation would be substantial, but can be reduced through implementation of required Mitigation Measures VEG-1 through MM VEG-6 (the full text of all mitigation measures is presented below in a section entitled "Mitigation Measures"). In combination, these measures would ensure that:

- project impacts to biological resources are minimized and do not exceed the impacts described herein;
- all such impacts are documented and reported to resource agencies;
- communication among the project owner and resource agencies is maintained during construction, O&M, and decommissioning phases via the Designated Biologist;
- workers on the site are informed of the requirements for protection of biological resources;
- adverse impacts to soils and vegetation are mitigated to the extent feasible; and
- loss of vegetation and habitat is compensated by permanent protection and management of comparable habitat off site.

These measures are expected to effectively mitigate the majority of the project's adverse impacts to these resources, though some residual impacts would remain (see below).

- Mitigation Measure VEG-1 (Assign a Designated Biologist and Biological Monitors) would require the project owner to assign qualified biologists to monitor project construction, prepare monitoring reports for the project owner and resource agencies, and maintain resource agency contact throughout the construction phase of the project.
- Mitigation Measure VEG-2 (Conduct Biological Monitoring and Reporting during project Construction, Operations, and Decommissioning) describes the responsibilities and authority of the Designated Biologist and Biological Monitor with respect to vegetation, habitat, special-status species, reporting, and other aspects of the monitoring program.
- Mitigation Measure VEG-3 (Prepare and Implement a Worker Environmental Awareness Program [WEAP]), requires an education program to inform workers on the site of biological resource values, the specific policies and requirements in place to protect those values, and their responsibilities for protection of biological resource values.
- Mitigation Measure VEG-4 (Minimize Construction-Related Impacts) requires minimization of all construction sites, to avoid unnecessary damage to biological resources, including vegetation and habitat.
- Mitigation Measure VEG-5 (Prepare and Implement a Vegetation Resources Management Plan) requires vegetation management or revegetation of disturbed areas within the project footprint, as compatible with project operation and maintenance. Note that all disturbances to soils and vegetation are analyzed here as long-term or permanent impacts and off-site compensation is required in MM VEG-6. Therefore, the goal of the revegetation plan will be to prevent further degradation of disturbed sites, but not necessarily to restore pre-disturbance habitat values.
- Mitigation Measure VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat) requires acquisition and management of off-site vegetation and habitat in perpetuity to offset the permanent loss of vegetation and habitat on the project site. Consistent with the NECO Plan requirements, impacts to Creosote Bush Scrub (Sonoran Desert Scrub) would be compensated at a 1:1 ratio; impacts to Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) would be compensated at a 3:1 ratio; and impacts to designated wildlife management areas would be compensated at increased ratios (see Section 4.4). The Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) is a special-status plant community

that provides habitat elements and structure not available in surrounding Creosote Bush Scrub (Sonoran Desert Scrub). This Woodland is closely associated with the beds and banks of state-jurisdictional streambeds and is, in effect, the riparian vegetation of regional episodic hydrologic systems. The Applicant is currently working with Wildlands Inc. to develop a suitable compensation strategy to address the resources and ratios described in MM VEG-6 (see Appendix C.12).

Special-Status Plants. Project construction would remove Emory's crucifixion thorn (at least16 individual plants occur within the project boundaries, but not all individuals would be directly impacted by project facilities), Utah vine milkweed (one individual reported in 2010, not relocated in 2011), and desert unicorn-plant (two individuals at one location, located in 2011). The natural history of desert unicorn-plant (perennial herb; sprouts above-ground every few years in response to warm season rains) makes it likely that additional, undocumented locations exist on the site. Thus, construction of Alternative 4 could affect additional desert unicorn-plant locations. Impacts to special-status plants would be adverse, but only those impacts ranked as California Rare Plant Rank (CRPR) 1 or 2 would warrant mitigation. Emory's crucifixion thorn on private lands may be subject to the provisions of the California Desert Native Plants Act. Emory's crucifixion thorn is ranked as CRPR 2, and the other two species are CRPR 4. None of the three plant taxa are BLM Sensitive Species (see Section 3.3). Implementation of Mitigation Measure VEG-7 (Mitigate Direct Impacts to Special-Status Plants) would reduce project impacts to Emory's crucifixion thorn by requiring the project owner to either (1) salvage individual plants from the site prior to construction; (2) introduce greenhouse-raised plants into suitable off-site habitat; or (3) to provide compensation lands with extant Emory's crucifixion thorn. The project's impacts to the two other species (both CRPR 4), while adverse, would not warrant further mitigation. The likelihood for success of Emory's crucifixion thorn salvage or propagation is unknown, and any such efforts will be considered experimental in nature. However, based on the conservation status of this and other special-status plants on the site, MM VEG-7, in combination, with other measures, is expected to appropriately minimize or mitigate the majority of the project's adverse impacts to special-status plants, though some residual impacts would remain (see below).

State-Jurisdictional Streambeds. Construction of the project would adversely impact 113 acres of state-jurisdictional streambeds. This includes 34.5 acres within Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland), and 78.5 within Creosote Bush Scrub (Sonoran Desert Scrub). Construction would also impact 180 acres of the adjacent riparian vegetation (i.e., Blue Palo Verde–Desert Ironwood Woodland, or Desert Dry Wash Woodland). Total impacts to jurisdictional areas are calculated as the sum of mapped woodlands (180 acres) plus the acreage of jurisdictional streambeds mapped outside those woodlands (78.5 acres), or 258.5 acres total. These streambeds convey water and sediment to stream channels and their associated vegetation and habitat (e.g., Desert Dry Wash Woodland), both on the project site, and off site downstream. Impacts to state-jurisdictional streambeds would require the project owner to obtain a Lake and Streambed Alteration Agreement from the CDFG. The USACE has issued its jurisdictional determination, concluding that no waters of the United States occur on the proposed solar facility site (Appendix C.11. [USACE May 29 2012]). The Colorado River Basin Regional Water Quality Control Board (Region 7) has indicated that 401 Water Quality Certification is not necessary (Appendix C.11. [Jay Mirpour email June 26 2012]). In addition, no wetlands occur on the project site. As described in detail in Section 3.3.9, although one area

in the solar facility site is identified as a National Wetland Inventory (NWI) wetland, higher resolution project-specific surveys determined that the waters on site are classified as non-wetland State waters according to multiple legal and scientific criteria.

The proposed project does not include diversion channels, detention basins, or other substantial alterations to the existing surface hydrology. Water and sediment would be conveyed down-slope, across the site, by sheet flow or within channels where topography remains present after site preparation and project construction. However, surface flow patterns, velocities, and sediment loads may be altered throughout the site by solar panel foundations, access roads, and other project features. Native vegetation would be removed or degraded from these streambed and woodland areas and would no longer provide suitable habitat for most native wildlife species. Altered surface flows may affect downstream vegetation by altering water or sediment availability. These impacts would be offset by implementing Mitigation Measures VEG-1 through MM VEG-6, described above. In addition, implementation of Mitigation Measure VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) would minimize adverse effects of construction activities to jurisdictional streambeds both on site and off site. The project owner will be required by California Fish and Game Code Section 1600 to obtain a Lake and Streambed Alteration Agreement from the CDFG prior to altering streambeds on the project site. Mitigation Measure WAT-1 requires demonstration of compliance with any applicable permit conditions from CDFG, USACE, and Regional Water Quality Control Board. Implementation of these measures, in combination with other measures, is expected to effectively mitigate the majority of the project's adverse impacts to state-jurisdictional streambeds, though some residual impacts would remain (below).

Indirect Effects

In addition to the direct impacts to vegetation, project construction would have several indirect impacts to native vegetation, special-status plants, and jurisdictional streambeds off site, including introduction or spread of invasive weeds and, potentially, depletion of ground water and diversion of surface water flows and subsequent effects to groundwater-dependent vegetation.

Invasive Weeds. Invasive weeds can displace native species, supplant food plants or other wildlife habitat elements (e.g., cover), alter natural habitat structure and ecological function, alter natural wildfire patterns, or displace special-status plant occurrences and habitat. The spread of invasive plants is an important threat to biological resources in the California desert. Human activities, including the proposed project, can affect weed distribution and abundance in two ways: they can introduce new weed species to an area, and they can facilitate propagation and spread of weeds already present.

New weed introductions occur when seeds are inadvertently introduced to a site, most often with mulch, hay bales, or wattles used for erosion control, or when they are carried on equipment tires from off site. Invasive weeds generally spread most readily in disturbed, graded, or cultivated soils, including soils disturbed by construction equipment. Weeds are relatively low in abundance and diversity throughout the proposed project area. However, construction of the proposed project would be expected to introduce or facilitate the spread of invasive non-native plants, including weeds noted on the site during field surveys (Section 3.3) or weeds new to the area. Please see Appendix B (**Summary of Invasive Plant Species Occurring within the DHSP Study Area**) of the Integrated Weed Management Plan for the DHSP located in

Appendix C-10 of this FEIS, for a complete assessment of each invasive plant species known from the project site. The assessment includes site-specific impacts on biological resources, as well as treatment schedule and control options for each species.

Herbicides pose risks to terrestrial and aquatic vegetation. Most aquatic herbicides, and several terrestrial herbicides, are non-selective and could adversely impact non-target vegetation. Accidental spills and herbicide drift from treatment areas could be particularly damaging to non-target vegetation on BLM land, and crop plants or other vegetation found on privately-owned lands near treatment areas. The project's Integrated Weed Management Plan (IWMP; see Appendix C-10) includes specific measures to avoid application at project perimeters, in the vicinity of native vegetation, or special status plants, and to avoid overspray or spillage in any areas. In addition, the Draft IWMP describes proposed usage and formulations of herbicides at the DHSP. Use of herbicides would be in accordance with the measures and standard operating procedures in the BLM's 2007 *Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (PFEIS). As described in Chapter 1, Section 1.9.1, the DHSP EIS is tiered to the Herbicide PFEIS. Complying with the measures and standard operating procedures in the Herbicide PFEIS, MM PHS-9, as well as other limitations described in the Draft IWMP, would avoid potential adverse effects of herbicides to native vegetation and special-status plants. Risks to vegetation from proposed herbicides would be similar to, or less than, risks from currently-available herbicides. Buffer zones would be used to reduce the risks to vegetation from herbicide treatments.

MM VEG-9, in combination, with other measures, is expected to effectively mitigate the project's adverse impacts to biological resources that would result from introduction or spread of invasive weeds.

Hydrology and Groundwater. Project construction could affect off-site vegetation, particularly the Blue Palo Verde–Desert Ironwood Woodlands (Desert Dry Wash Woodland) downstream of the project footprint, by altering water quality, hydrology, and possibly, by altering depth to groundwater. If pollutants, silt, or other materials are carried off-site by intermittent stream flows, they could be deposited in downstream washes or could enter the soil or groundwater, where they could adversely affect native woodland vegetation. Implementation of a Surface Water Protection Plan (SWPP; see Section 4.22, Water Resources) and Mitigation Measure VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) during construction would reduce these impacts.

In addition, groundwater pumping during construction of the project could lower local groundwater levels. Groundwater pumping for agriculture has caused loss of phreatophytic (groundwater-dependent) woodlands in Arizona (Jackson and Comus 1999). Depending on the rate and extent of groundwater drawdown and on the ability for groundwater-dependent plants to adjust by extending their root systems, groundwater pumping could cause mortality of desert dry wash woodland trees (desert ironwood and blue palo verde). This potential adverse impact would be minimized by Mitigation Measure VEG-10 (Prepare and Implement a Desert Dry Wash Woodland Monitoring and Reporting Plan), which would require the project owner to monitor groundwater levels and plant health and vigor in adjacent desert dry wash woodland areas. If plant stress or mortality is determined to be related to project activities, then the project owner will either refrain from pumping, reduce groundwater pumping to allow for recovery of the

groundwater table, or provide additional habitat compensation as described in MM VEG-10. MM VEG-10, in combination, with other measures, is expected to effectively mitigate the majority of the project's adverse impacts to off-site Desert Dry Wash Woodland that could result from groundwater pumping, though some residual impacts would remain (below).

Operation and Maintenance

O&M activities associated with Alternative 4 could directly affect vegetation, special-status plants, and jurisdictional resources due to long-term habitat alteration by installation of the solar panels and other facilities, dust and other soil disturbances, management of vegetation on-site for operations of the facility, and ongoing potential to introduce new weed species or facilitate the spread of existing species.

Direct Effects

Native Vegetation Including Sensitive Natural Communities. Project vegetation management during facilities operations would consist of mowing, weeding, or other vegetation control for compatibility with facility operations. In addition, altered plant habitat (particularly shade beneath the solar panels and compacted soils on maintenance and access roads) will further eliminate or severely alter native shrublands. Overall impacts of these O&M procedures would prevent recovery of native vegetation and wildlife habitat throughout the life of the project. Vegetation throughout the site would remain degraded from natural conditions throughout the life of the project, with reduced abundance, cover and height of native shrubs; reduced overall vegetation cover; and increased relative cover of non-native species. These long-term impacts to vegetation can be reduced through implementation of required Mitigation Measures VEG-1 through MM VEG-6, as summarized above (full text is presented below). These measures would limit the initial disturbance areas and avoid off-site habitat degradation; require vegetation management on-site to minimize adverse off-site impacts, and require off-site compensation for habitat lost or degraded throughout the life of the project.

Special-Status Plants. Project O&M would not affect special-status plants on site after those plants are removed or damaged during initial construction. However, vegetation management for facility operation could cause accidental off-site impacts, due to herbicide drift or off-site hydrology impacts. Mitigation Measures VEG-5 (Prepare and Implement a Vegetation Resources Management Plan) and MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan) would minimize these impacts throughout the life of the project.

State-Jurisdictional Streambeds. O&M of the project would maintain streambeds and associated habitat values throughout the site in degraded condition. The larger streambeds would continue to convey water and sediment downslope, but would no longer provide suitable habitat for most native wildlife species. These impacts would be offset by implementing Mitigation Measures VEG-1 through MM VEG-6 as summarized above. In addition, implementation of Mitigation Measure VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) would minimize adverse effects of O&M activities to jurisdictional streambeds both on site and off site.

Indirect Effects

In addition to the direct impacts to vegetation, project O&M could have several indirect impacts to native vegetation, special-status plants, and jurisdictional streambeds off-site, including introduction or spread of invasive weeds and, potentially, depletion of groundwater and subsequent effects to groundwater-dependent vegetation.

Invasive Weeds. Operation of the solar facility would be expected to introduce or facilitate the spread of invasive non-native plants, including weeds noted on the site during field surveys (Section 3.3) or weeds new to the area. This potential impact would be minimized by Mitigation Measure VEG-9 (Prepare and Implement an Integrated Weed Management Plan).

Hydrology and Groundwater. Surface flow alterations that result from project construction would continue during the O&M phase, over the life of the project. Project O&M could affect off-site vegetation, particularly the Blue Palo Verde–Desert Ironwood Woodlands (Desert Dry Wash Woodland) downstream of the project footprint, by altering water quality, hydrology, and possibly, by altering depth to groundwater. If pollutants, silt, or other materials are carried off-site by intermittent stream flows, they could be deposited in downstream washes or could enter the soil or groundwater, where they could adversely affect native woodland vegetation. Implementation of Mitigation Measure VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) during construction and during O&M would reduce these impacts.

In addition, groundwater pumping during project O&M could lower local groundwater levels. Depending on the rate and extent of groundwater drawdown and on the ability for groundwater-dependent plants to adjust by extending their root systems, groundwater pumping could cause mortality of desert dry wash woodland trees (desert ironwood and blue palo verde). This potential impact would be minimized by Mitigation Measure VEG-10 (Prepare and Implement a Desert Dry Wash Woodland Monitoring and Reporting Plan), which would require the project owner to monitor groundwater levels and plant health and vigor in adjacent desert dry wash woodland areas and to implement remedial measures if the monitoring identifies impacts.

Decommissioning

The proposed methods of decommissioning of the solar facility are summarized in Chapter 2. The expected operational lifetime of the project is 30 years; however, the actual life of the project could be longer or shorter. When permanent closure is appropriate, a decommissioning plan will be prepared and submitted to the BLM for review and approval. Closure strategies may include temporary "mothballing;" removing old facilities and upgrading to newer solar technology; or complete removal of equipment and restoration of the land to BLM-approved specifications. Fully decommissioning the site would involve removal and demolition of above-ground structures; dismantling and removing concrete structures to a depth of 3 feet; removal of underground utilities within 3 feet of final grade; and excavation and removal of contaminated soils, if applicable (see Sections 2.4.6, 2.9.4).

Impacts to vegetation resources would vary, according to the decommissioning strategy and the intended re-use of the site.

Direct Effects

Facilities removal during decommissioning would be expected to take place within the approved project footprint, and would not be expected to remove or degrade vegetation, special-status plants, or state-jurisdictional streambeds beyond the project boundaries, except through the effects of dust or similar direct off-site impacts, as discussed above (direct effects of construction). These impacts can be reduced through implementation of required Mitigation Measures VEG-1 through MM VEG-6, which would apply during decommissioning as they would during construction. In particular, Mitigation Measure VEG-5 (Prepare and Implement a Vegetation Resources Management Plan) requires the project owner to prepare and implement a supplement to the Vegetation Resources Management Plan during decommissioning, to be compatible with the proposed re-use of the site and the other components of the decommissioning plan. If the ultimate re-use of the proposed project site is to return it to natural open space, then the expected recontouring and replanting during decommissioning would have a net benefit to vegetation resources. This potential beneficial impact cannot be evaluated at this time, pending the final re-use decision and the details of the decommissioning plan.

Indirect Effects

The indirect effects of decommissioning to vegetation resources would be similar to the indirect effects described above for project construction. These indirect effects would include the potential for introduction or spread of invasive weeds and effects to downstream hydrology and associated vegetation. These impacts would be minimized by Mitigation Measures VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas), MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan), and MM VEG-10 (Prepare and Implement a Desert Dry Wash Woodland Monitoring and Reporting Plan).

Mitigation Measures

The following mitigation measures are required to reduce effects related to construction, O&M, and decommissioning of the project.

MM VEG-1 **Assign a Designated Biologist and Biological Monitors.** Prior to ground-disturbing activities, an individual will be designated by the project owner and approved by the BLM, Riverside County, and the Resource Agencies (USFWS and CDFG) as a Designated Biologist (i.e., field contact representative). The project owner will appoint a Designated Biologist throughout the construction, O&M, and post-project decommissioning phases, and any subsequent monitoring/reporting period. For the construction and decommissioning phases of the project, and subsequent monitoring and reporting, the Designated Biologist's qualifications will be as listed below. These requirements may be adjusted over the life of the project depending on specific agency policies and status of special-status species in the vicinity, and the nature of project operational activities by agreement among the BLM, Riverside County, and Resource Agencies. Minimum qualifications shall be as follows:

- Bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field;

- At least three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society;
- At least one year of direct field experience with biological resources found in or near the project area, including desert tortoise;
- Meet the current USFWS Authorized Biologist qualifications criteria (http://.fws.gov/ventura/species_information/protocols_guidelines/index.html), demonstrate familiarity with protocols and guidelines for the desert tortoise, and be approved by the USFWS (note that biologists who meet earlier USFWS criteria may not meet current criteria due to requirements to assess health and draw blood; biologists must obtain training such as that offered through the Desert Tortoise Conservation Center in Las Vegas); and
- Possess a California Endangered Species Act Memorandum of Understanding pursuant to Section 2081(a) for desert tortoise.

The Designated Biologist duties will vary during the construction, O&M, and decommissioning phases. In general, the duties will include, but will not be limited to those listed below:

- Notify the BLM's Authorized Officer, Riverside County, and the Resource Agencies at least 14 calendar days before initiation of ground-disturbing activities.
- Immediately notify the project owner, BLM's Authorized Officer, Riverside County, and the Resource Agencies (as applicable) in writing of any non-compliance with any of the biological mitigation measures or permit conditions.
- Conduct continuous compliance inspections throughout the initial site preparation activities, including the construction of tortoise-exclusion fencing; pre-construction clearance surveys; and initial clearing, grubbing, and grading. Provide weekly verbal or written updates to BLM, Riverside County, and, for any information pertinent to state or federal permits, to the Resource Agencies.
- After the initial clearance and construction activities are complete, conduct monthly compliance inspections throughout the construction and decommissioning phases of the project, and provide weekly verbal or written updates to BLM, Riverside County, CDFG, and USFWS. The Biological Monitor will conduct inspections daily or weekly as necessary during construction and decommissioning to provide these weekly updates. Prepare and submit monthly compliance reports as required in MM VEG-2, and other reports as required under all applicable mitigation measures. A copy of the monthly compliance reports will also be provided to Joshua Tree National Park (JTNP).
- During the operations phase of the project, conduct quarterly compliance inspections; conduct weed monitoring and control (as required in MM

VEG-9); prepare and submit quarterly compliance reports and other reports as required under all adopted mitigation measures.

- Be available to supervise, conduct, and coordinate mitigation, monitoring, and other biological resources compliance requirements, particularly in areas requiring avoidance or containing sensitive biological resources, such as special-status species or their habitat; and to appoint a Biological Monitor as temporary contact at any time the Designated Biologist will be unavailable.
- Respond directly to inquiries of the BLM, Riverside County, the Resource Agencies, NPS, or any other agencies regarding biological resource issues.
- Train and supervise the Biological Monitors as appropriate, and ensure their familiarity with the Worker Environmental Awareness Program (WEAP) training, mitigation measures, conditions required by biological permits and agreements, and current USFWS guidelines on desert tortoise surveys and handling procedures.
- Maintain the ability to be in regular, direct communication with representatives of the BLM, Riverside County, the Resource Agencies, and JTNP, including notifying these agencies of dead or injured special-status species.

The project owner and Designated Biologist will appoint Biological Monitors as needed for the construction, O&M, and decommissioning phases of the project. During the operations phase, a Biological Monitor may assume most of the on-site duties, so long as a qualified Designated Biologist is available as needed. The Designated Biologist will submit the resume, at least three (3) references, and contact information of each of the proposed Biological Monitors to the BLM's Authorized Officer, Riverside County, and the Resource Agencies. The resume will demonstrate, to the satisfaction of the BLM's Authorized Officer and Riverside County, the appropriate education and experience to accomplish the assigned biological resources tasks. The responsibilities, qualifications, and authority of each Biological Monitor will be the equivalent of the USFWS designated Desert Tortoise Monitor (http://www.fws.gov/ra/pecies_information/rotocols_guidelines/.).

The Designated Biologist and Biological Monitors will conduct clearance surveys and monitoring duties as defined in all adopted mitigation measures. In addition, they will:

- Clearly mark sensitive biological resource areas, as appropriate, during construction, O&M, and decommissioning, and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions.
- Inspect active construction or O&M activity areas where animals may have become trapped prior to construction commencing each day. At the end of each work day, inspect for the installation of structures that prevent entrapment or allow escape during periods of construction inactivity. Periodically inspect areas with high vehicle activity (e.g., parking lots) for animals in harm's way and relocate them if necessary.

- Present WEAP training to all project employees, contractors, and on-site personnel and provide documentation to the BLM, Riverside County, and Resource Agencies (as applicable), as defined in MM VEG-3.

MM VEG-2 Conduct Biological Monitoring and Reporting during Project Construction, Operations, and Decommissioning. The Designated Biologist and Biological Monitors will conduct surveys and monitoring of mobilization activities, construction-related ground disturbance, grading, boring, or trenching during all phases of the project. The Designated Biologist and Biological Monitors will ensure that construction activities are contained within the staked and flagged construction areas at all times. The Designated Biologist or a Biological Monitor will be present during all ground-disturbing activities and, to the extent practicable, will actively or passively (i.e., without handling the animals) relocate wildlife out of harm's way. Relocated animals will be moved to a suitable location on BLM lands outside of the project footprint. This location will be within 500 meters of the animal's original location, if feasible. Desert tortoises will only be handled in accordance with the project Biological Opinion and Incidental Take Permit issued by USFWS and CDFG, respectively. Provisions for handling desert tortoises will be specified in the Desert Tortoise Translocation Plan (see MM WIL-2).

The Designated Biologist will have the authority and responsibility to immediately halt any project activities that are not in compliance with mitigation measures incorporated into the BLM Record of Decision or Riverside County's Conditional Use Permit or any Conditions of Approval, any requirements of the USFWS Biological Opinion, the CDFG 2081 Incidental Take Permit or 2080.1 Consistency Determination, the CDFG 1600 Streambed Alteration Agreement, or any other applicable permit or agreement for the project involving biological resources.

The Designated Biologist and the Biological Monitors will also have the authority to order any reasonable measure to avoid take of a listed species. If required by the Designated Biologist or Biological Monitor(s), the project owner's construction/operation manager will halt any site mobilization, ground disturbance, grading, boring, trenching, or operation activities in areas specified by the Designated Biologist. The Designated Biologist will:

1. Require a halt to any activities in any area if it is determined that the activity, if continued, would cause an unauthorized adverse impact to biological resources;
2. Inform the project owner and the construction/operation manager when activities may resume;
3. Notify the BLM, Riverside County, and Resource Agencies (as applicable) no later than the following morning (or Monday morning in the case of a weekend) of a halt of any activities, and any corrective actions already taken or to be taken as a result of the work stoppage;

4. If the Designated Biologist is unavailable for direct consultation, an appointed Biological Monitor will act on behalf of the Designated Biologist; and
5. Report all special-status species observations to the CNDDB and include copes of these reports in monthly or quarterly monitoring reports, and immediately report any dead or injured listed threatened or endangered species to the Resource Agencies.

Any translocation of desert tortoises will be done in accordance with the project Biological Opinion issued by the USFWS, and any biologists who handle tortoises will be authorized to do so in advance by USFWS.

Throughout the construction and decommissioning phases of the project, the Designated Biologist will submit a monthly compliance report to the project owner, BLM's Authorized Officer, Riverside County, and the Resource Agencies. Copies of the monthly compliance reports will also be provided to the NPS. After construction has been completed, and again when decommissioning is complete, the Designated Biologist will provide the project owner, Bureau of Land Management (BLM), Riverside County, and JTNP with final construction-phase and decommissioning-phase monitoring reports. The Biological Monitor will also provide BLM with brief weekly updates on the status of construction and monitoring efforts throughout the construction and decommissioning phases. During the O&M phase, the reporting schedule will be quarterly rather than monthly. The project owner will be responsible for ensuring that construction monitoring is conducted during all project phases.

MM VEG-3 Prepare and Implement a Worker Environmental Awareness Program (WEAP). This mitigation measure provides further detail and specificity to the WEAP requirements described in AM BIO-4. The project owner will prepare and implement a project-specific WEAP that will be available in English and Spanish. The project owner will secure approval for the WEAP from the BLM and Riverside County in consultation with the USFWS and CDFG. The WEAP will be provided to the JTNP for review and comment. The project owner will be responsible for ensuring that all workers at the site receive this training prior to beginning work on the project and throughout the construction, operations, and decommissioning phases. The WEAP will be administered to all on-site personnel including surveyors, construction engineers, employees, contractors, contractor's employees, supervisors, inspectors, subcontractors, and delivery personnel. The WEAP will be implemented during site pre-construction, construction, operation, and closure/decommissioning. The WEAP will:

1. Be developed by or in consultation with the Designated Biologist and consist of an on-site or training center presentation in which supporting written material and electronic media, including photographs of protected species, is made available to all participants;
2. Provide an explanation of the function of flagging that designates authorized work areas;

3. Discuss general safety protocols such as hazardous substance spill prevention and containment measures and fire prevention and protection measures;
4. Provide a review of mitigation and biological permit requirements;
5. Provide an explanation of the sensitivity of the vegetation and habitat within and adjacent to work areas, and proper identification of these resources;
6. Provide a discussion of the federal and State Endangered Species Acts, Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act and the consequences of non-compliance with these acts;
7. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas, and explain the reasons for protecting these resources;
8. Inform participants that no snakes, other reptiles, birds, bats, or any other wildlife will be harmed or harassed;
9. Place special emphasis on species known or likely to occur on the project site and/or gen-tie alignment, including special-status plants, desert tortoise, Mojave fringe-toed lizard, burrowing owl, golden eagle, nesting birds, desert kit fox, Palm Springs round-tailed ground squirrel, American badger, and Nelson's bighorn sheep, including information on physical characteristics, distribution, behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protection measures;
10. Describe the temporary and permanent habitat protection measures to be implemented at the project site;
11. Discuss the importance of avoiding the introduction of invasive weeds onto the project site and surrounding areas, describe the Integrated Weed Management Plan (MM VEG-9) and applicable compliance requirements for workers on the site;
12. Provide contact information for the Designated Biologist and Biological Monitors to handle late comments and questions about the material discussed in the program, as well as notification of any dead or injured wildlife species encountered during project-related activities;
13. Include printed training materials, including photographs and brief descriptions of Emory's crucifixion thorn and other special-status plants that may be encountered, desert tortoises, Mojave fringe-toed lizards, burrowing owls, golden eagles, nesting birds covered under the Migratory Bird Treaty Act, desert kit fox, roosting bats, Palm Springs round-tailed ground squirrels, Nelson's bighorn sheep, and American badger, including behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protection measures;
14. Prominently display posters and descriptions in offices, conference rooms, employee break rooms, and other areas where employees may congregate, of Emory's crucifixion thorn and other special-status plants that may be encountered, desert tortoises, Mojave fringe-toed lizards, burrowing owls, golden eagles, nesting birds, desert kit fox, roosting bats, Palm Springs round-

tailed ground squirrels, Nelson's bighorn sheep, and American badger, including behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protection measures;

15. Direct all WEAP trainees to report all observations of listed species and their sign to the Designated Biologist for inclusion in the monthly compliance report; and
16. Include a training acknowledgment form to be signed by each worker indicating that they received training and will abide by the guidelines.

The specific program can be administered by a competent individual(s) acceptable to the Designated Biologist. The project owner will be responsible for ensuring that each construction worker at the site and gen-tie, throughout the duration of construction and decommissioning activities, receives the above training.

MM VEG-4 **Minimize Construction-Related Impacts.** Final engineering of the project will reduce the extent of the temporary construction work areas to the extent feasible and minimize the impacts to native vegetation and habitat. Prior to the start of construction, work areas (including, but not limited to, staging areas, access roads, and sites for temporary placement of construction materials and spoils) will be delineated with orange construction fencing or staking to clearly identify the limits of work and will be verified by the Designated Biologist or the Biological Monitor (MM VEG-1) prior to ground-disturbing activities. Fencing/staking will remain in place for the duration of construction. Spoils will be stockpiled in disturbed areas lacking native vegetation or where habitat quality is poor. To the extent possible, disturbance of shrubs and surface soils due to stockpiling will be minimized. All disturbances, vehicles, and equipment will be confined to the fenced/flagged areas.

Spoils and topsoil will be stockpiled in areas already disturbed or to be disturbed by construction, so that stockpile sites do not add to total disturbance footprint.

When feasible, construction activities will implement drive and crush rather than grading. Construction equipment would drive over and crush native plants to minimize impacts to the roots of desert shrubs. Drive and crush is expected to reduce the recovery time of desert shrubs within the temporary construction areas.

MM VEG-5 **Prepare and Implement a Vegetation Resources Management Plan.** This mitigation measure provides further detail and specificity to the Pre-construction Surveys for Special-Status Plant Species and Cacti provided in AM BIO-3, and the Vegetation Resources Management Plan described in AM BIO-5. The project owner will contract a qualified botanist to prepare and implement a Vegetation Resources Management Plan, to be reviewed and approved by BLM, Riverside County, and the Resource Agencies. The Resources Management Plan will be provided to the JTNP for review and comment. The Vegetation Resources Management Plan must be approved in writing prior to the initiation of any vegetation-disturbing activities. The Plan's goal will be to prevent further degradation of disturbed sites, but not necessarily to restore pre-disturbance habitat values, due to off-site compensation requirements (MM VEG-6). The

Vegetation Resources Management Plan will detail the methods for revegetation of temporarily impacted sites; salvage of cacti and special-status plants from the project footprint; and long-term management of vegetation within the solar facility during its operations. The Vegetation Resources Management Plan will be supplemented prior to decommissioning to provide a framework for vegetation management and post-decommissioning restoration/reclamation. The Vegetation Resources Management Plan will include the following components:

1. **Reclamation, revegetation, or restoration of temporarily impacted sites.** Temporary project disturbances to soils and vegetation (e.g., staging areas, materials and equipment, lay-down areas, temporary work areas and access routes along the gen-tie line) are analyzed as long-term disturbance, and habitat compensation lands are required to mitigate those long-term impacts (MM VEG-6). In order to avoid further degradation of these sites, the project owner will prepare and implement a plan to revegetate or restore the sites. The objectives will be to prevent or minimize further site degradation; stabilize soils; maximize the likelihood of vegetation recovery over time; and minimize soil erosion, dust generation, and weed invasions. The nature of site reclamation, revegetation, or restoration at each site will differ according to its pre-disturbance condition and the nature of the construction disturbance (e.g., drive and crush, vs. blading).
2. **Implementation**: The Plan will include at minimum: (a) soil preparation measures, including locations of recontouring, decompacting, imprinting, or other treatments; (b) details for topsoil storage, as applicable; (c) plant material collection and acquisition guidelines, including guidelines for salvaging, storing, and handling plants from the project site, as well as obtaining replacement plants from outside the project area; (d) a plan view drawing or schematic depicting the temporary disturbance areas (drawing of "typical" gen-tie structure sites will be appropriate); (e) time of year that the planting or seeding will occur and the methodology of the planting; (f) a description of the irrigation, if used; (g) a statement that the Integrated Weed Management Plan (MM VEG-9) will be implemented, or alternate measures to control invasive weeds undertaken, as appropriate to site conditions; (h) quantitative success criteria; and (i) a detailed monitoring program to measure the success criteria, commensurate with the Plan goals. This Plan will also contain contingency measures for failed revegetation or restoration efforts (efforts not meeting success criteria).
3. **Seed and Nursery Stock.** Only seed or potted nursery stock of locally occurring native species from a local source will be used for revegetation. Seeding and planting will be conducted as described in Chapter 5 of *Rehabilitation of Disturbed Lands in California* (Newton and Claassen 2003). The list of plants observed during botanical surveys of the project area will be used as a guide to site-specific plant selection for revegetation.
4. **Monitoring Requirement and Success Criteria.** The Plan will include objective, quantifiable success criteria, commensurate with the goals of the Plan. Monitoring of the reclamation, revegetation, or restoration sites will

continue annually for 3 years or until the defined success criteria are achieved, whichever is later. The project owner will be responsible for implementing remediation measures as needed. Following remediation work, the site will be subject to the success criteria and monitoring period as required for the initial reclamation, revegetation, or restoration.

5. **Cactus Salvage.** In conformance with BLM policy, the project owner will include salvaged or nursery stock yuccas (all species), and cacti (excluding cholla species, genus *Cylindropuntia*), in revegetation plans and implementation affecting BLM lands. The Plan will include methods to salvage and replant cacti, yucca, or other native species found on the site, prior to disturbance. It will include descriptions of pre-project field surveys to locate and identify specimens suitable for salvage; season for salvaging the plants; methods for salvage, storage, and re-planting them; locations for re-planting; and appropriate monitoring and success criteria for the salvage work.

5. **Operations Phase On-Site Vegetation Management:** The Plan will include methods and scheduling for on-site vegetation management throughout the operations phase, describing mowing or other vegetation treatments to be implemented, disposal of mown material, and incorporating all applicable components of the Integrated Weed Management Plan, including any proposed herbicide usage.

6. **Decommissioning Phase Plan Supplement.** Prior to closing and decommissioning the project, the project owner will contract a qualified botanist to prepare a supplement to the Vegetation Resources Management Plan, to describe all proposed vegetation management activities, and to be consistent with the site's proposed reuse. The supplement will describe any proposed reclamation, revegetation, or restoration of the site, to be consistent with Section 1 of this measure, above, as well as weed management and post-decommissioning monitoring requirements and success criteria.

7. **Reporting.** Within 90 days after completion of each year of project construction, the project owner will provide to the BLM and Riverside County verification of the total vegetation acreage subject to temporary and permanent disturbance and a written report identifying which items of the Vegetation Resources Management Plan have been completed, a summary of all modifications to mitigation measures made during the project's construction and decommissioning phases, and which items are still outstanding. The annual reports will also include a summary of the reclamation, revegetation, or restoration activities for the year, a discussion of whether performance standards for the year were met, any remedial actions conducted and recommendations for remedial action, if warranted, that are planned for the upcoming year.

MM VEG-6 Provide Off-Site Compensation for Impacts to Vegetation and Habitat. This mitigation measure provides further detail and specificity to the habitat compensation requirements described in AM BIO-1. In addition to compensating for impacts to vegetation resources, this measure also compensates for wildlife habitat resources. The Habitat Compensation Plan will compensate for acreages and

habitat types as defined herein. The Plan will be submitted for approval to the BLM, Riverside County, and Resource Agencies prior to the commencement of construction. The Habitat Compensation Plan will be provided to the JTNP for review and comment.

The project owner will acquire and protect, in perpetuity, compensation habitat to mitigate impacts to biological resources as detailed below. The compensation lands will be placed under conservation management to be funded through the terms described herein. The acreages and ratios will be based upon final calculation of impacted acreage for each resource and on ratios set forth in this measure, or in the USFWS Biological Opinion, the CDFG Streambed Alteration Agreement, the CDFG Incidental Take Permit, or the Consistency Determination, whichever presents a higher ratio. Acreages of anticipated compensation requirements as summarized throughout this measure are based on impacts analysis of Alternatives 4 and B (proposed project) in Sections 4.3 and 4.4 and ratios described below. Acreages will be adjusted as appropriate for other alternatives or future modifications during implementation.

Compensation will be provided for impacts to the following resources, at the specified ratios (acres acquired and preserved to acres impacted):

- Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) (3:1)
- Dune and partially stabilized sandfield habitat (applicable only to Alternative E, all within the Palen-Ford WHMA; 5:1)
- Creosote Bush Scrub (Sonoran Desert Scrub) (1:1)
- State-jurisdictional streambeds (3:1)
- Occupied habitat for special-status plants (1:1; see MM VEG-7)
- Occupied or suitable desert tortoise habitat and habitat linkages (minimum 1:1)
- Occupied and suitable Mojave fringe-toed lizard habitat (only applicable to Alternative E, all within the Palen-Ford WHMA; 5:1)
- Occupied or suitable habitat for breeding or wintering burrowing owls (13 acres for each single burrowing owl or breeding pair if owls occur on compensation lands; 19.5 acres per single burrowing owl or breeding pair if there is no evidence that the compensation lands are currently occupied by burrowing owls). Note that compensation will be required if owls are observed during preconstruction or clearance surveys, or during other incidental observations.
- Golden eagle foraging habitat (1:1)
- Nelson's bighorn sheep movement habitat (1:1)
- General wildlife movement corridors/habitat linkages (1:1)
- Habitat for other special-status wildlife species and nesting birds (1:1)
- Chuckwalla Desert Wildlife Management Area (DWMA) (5:1)

- Chuckwalla Desert Tortoise Critical Habitat Unit (CHU) (5:1)
- Palen-Ford Wildlife Habitat Management Area (WHMA) (1:1)

Under the proposed project, a total of 1,300 acres would be impacted (1,208 acres at the project site, and 92 acres along gen-tie Alternative B). Based on the proposed project, total habitat compensation lands would be no fewer than 2,083.5 acres, including, at minimum, 1,300 acres of desert tortoise habitat and 928.5 acres of state-jurisdictional streambeds (including at least 693 acres of Blue Palo Verde–Ironwood Woodland, or Desert Dry Wash Woodland). Final compensatory habitat acreages will be based on the final alternative selected and final project design. Table 4.3-3 details the minimum acres of habitat compensation lands for the proposed project, assuming maximum nesting of compensation lands (see discussion of "nesting" in Item 1 below Table 4.3-3). Final compensation requirements will be adjusted to account for any deviations in project disturbance, according to the final alternative selected, final design, and as-built project footprint. If the project shares gen-tie infrastructure with DSSF as proposed under Alternative B, the DHSP project owner will be responsible only for its proportion of compensation acreage to be acquired as mitigation for impacts of the shared facilities (i.e., 50 percent of compensation land requirements for construction-related impacts for shared infrastructure). The total amount of compensation mitigation lands required under this measure may exceed the acreages identified in Table 4.3-3, in order to provide mitigation for all of the resources identified in this measure.

Table 4.3-3. Minimum Total Compensation Acreage for Proposed Project[1]

Resource	Acres of Impact	Compensation Ratio	Compensation Acres
Previously disturbed (no compensation)	2	0	0
All acreage within Chuckwalla DWMA and/or Chuckwalla CHU	35.7	5:1	178.5
Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland), including state-jurisdictional streambeds mapped within woodland habitat (includes acreage within Palen-Ford WHMA; excludes DWMA and CHU)	231	3:1	693
State-jurisdictional streambeds mapped within Creosote Bush Scrub (Sonoran Desert Scrub) habitat (includes acreage within Palen-Ford WHMA; excludes DWMA and CHU)	78.5	3:1	235.5
Creosote Bush Scrub (Sonoran Desert Scrub), excluding state-jurisdictional streambeds mapped within Creosote Bush Scrub habitat (includes acreage within Palen-Ford WHMA; excludes DWMA and CHU)	976.5	1:1	976.5
Minimum Total Habitat Compensation Requirement	1,300		2,083.5

1 - Acreages based on estimates as described in Sections 4.4.7 (Alternative 4) and 4.4.12 (Alternative B).

1. **Nesting Compensation Lands.** Compensation lands for biological resources may be "nested." For example, compensation for impacts to burrowing owls could be entirely or partially fulfilled by the acquisition of Creosote Bush Scrub (Sonoran Desert Scrub) compensation lands, provided those lands also

contain suitable or occupied burrowing owl habitat and the acreage of compensation lands for burrowing owls is met. Thus, compensation for burrowing owls or other resources (desert tortoise, rare plants, golden eagle, etc.) may be fully nested within other compensation requirements.

2. **Compensation Ratios.** Where impacted habitats meet criteria as two (2) or more compensation ratios, the highest ratio will apply. For example, impacts to occupied desert tortoise habitat in Creosote Bush Scrub (Sonoran Desert Scrub) within the Chuckwalla DWMA would require mitigation at a 5:1 ratio.

3. **Compensation Land Selection Criteria.** Criteria for the acquisition, initial protection and habitat improvement, and long-term maintenance and management of compensation lands for impacts to biological resources will include all of the following:

   a. Compensation lands selected for acquisition to meet BLM, USFWS, CDFG, and Riverside County requirements will provide habitat value that is equal to or better than the quality and function of the habitat impacted, to be determined by BLM, CDFG, and USFWS biologist, taking into consideration soils, vegetation, topography, human-related disturbance, wildlife movement opportunity, proximity to other protected lands, management feasibility, and other habitat values;

   b. To the extent that proposed compensation habitat may have been degraded by previous uses or activities, the site quality and nature of degradation must support the expectation that it will regenerate naturally when disturbances are removed;

   c. Be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation;

   d. Not have a history of intensive recreational use or other disturbance that might cause future erosion or other habitat damage, and make habitat recovery and restoration infeasible;

   e. Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration;

   f. Not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat;

   g. Must provide wildlife movement value equal to that on the project site, to be determined by BLM, CDFG, and USFWS, based on topography, presence and nature of movement barriers or crossing points, location in relationship to other habitat areas, management feasibility, and other habitat values; and

h. Have water and mineral rights included as part of the acquisition, unless the BLM and Riverside County, in consultation with CDFG and USFWS, agree in writing to the acceptability of land without these rights.

i. Additional selection criteria for desert tortoise compensation lands:

   i. Compensation lands for impacts to desert tortoise will be within the Colorado Desert Tortoise Recovery Unit;

   ii. Will be contiguous and biologically connected to lands currently occupied by desert tortoise, ideally with populations that are stable, recovering, or likely to recover (for lands proposed as desert tortoise habitat compensation; and

   iii. Will contribute to wildlife movement and desert tortoise population connectivity value at least equal to that on the project site, by contributing to linkages between desert tortoise designated critical habitat, known populations of desert tortoise, and other lands allocated for conservation. The primary focus area for acquiring parcels to maintain/improve connectivity will be along the I-10 corridor between Desert Center and Cactus City with a priority on parcels that connect conserved lands on either side of the I-10 through large culverts or bridges; the habitat compensation ratio for mitigation lands along the I-10 corridor will be 1:1 for each acre of total long-term and permanent disturbance. If acquisition of sufficient acreage within the I-10 corridor is not feasible, then the project owner will coordinate with Resource Agencies to identify other suitable lands to compensate for the project's impacts to desert tortoise habitat connectivity.

j. Additional selection criteria for special-status plant compensation lands. The compensation lands selected for acquisition for impacts to special-status plants will include at least one of the following categories:

   i. <u>Occupied Habitat, No Habitat Threats</u>. The compensation lands selected for acquisition will be occupied by the target plant population and will be characterized by site integrity and habitat quality that are required to support the target species, and will be of equal or better habitat quality than that of the affected occurrence. The occurrence of the target special-status plant on the proposed acquisition lands should be viable, stable or increasing (in size and reproduction).

   ii. <u>Unoccupied but Adjacent</u>. The project owner may also acquire habitat for which occupancy by the target species has not been documented, if the proposed acquisition lands are adjacent to occupied habitat. The project owner will provide evidence that acquisition of such unoccupied lands would improve the defensibility and long-term sustainability of the occupied habitat by providing a protective buffer around the occurrence and by enhancing connectivity with undisturbed habitat.

k. If all or any portion of the acquired compensation lands meets the habitat occupancy or suitability requirement for more than one of the resources listed above, that portion of those compensation lands may also be used to fulfill that portion of the obligation to acquire compensation lands to mitigate impacts to those resources.

4. **Review and Approval of Compensation Lands Prior to Acquisition.** The project owner will submit a formal acquisition proposal to the BLM, USFWS, CDFG, and Riverside County describing the parcel(s) intended for purchase. This acquisition proposal will discuss the suitability of the proposed parcel(s) as compensation lands in relation to the selection criteria listed above, and must be approved by the BLM, CDFG, USFWS, and Riverside County in. The project owner will submit the formal acquisition proposal to the JTNP for review and comment.

5. **Management Plan.** The project owner or approved third party will prepare a management plan for the compensation lands in consultation with the entity that will be managing the lands. The goal of the management plan will be to support and enhance the long-term viability of the biological resources. The Management Plan will be submitted for review and approval to the BLM, CDFG, USFWS, and Riverside County, in consultation with the JTNP. A copy of the final Management Plan will be provided to the JTNP.

6. **Compensation Lands Acquisition Requirements.** The project owner will comply with the following requirements relating to acquisition of the compensation lands after the BLM, USFWS, CDFG, and Riverside County have approved the proposed compensation lands:

   a. **Preliminary Report.** The project owner, or an approved third party, will provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the BLM, USFWS, CDFG, and Riverside County. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the BLM and Riverside County. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission, and the Wildlife Conservation Board.

   b. **Title/Conveyance.** The project owner will acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement, as required by the BLM, USFWS, CDFG, and Riverside County. Any transfer of a conservation easement or fee title must be to CDFG, to a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to BLM or other public agency approved by the BLM and Riverside County. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement will be recorded in favor of CDFG or another entity approved by the BLM and Riverside County. If an entity other than CDFG holds a conservation

easement over the compensation lands, the BLM and Riverside County may require that CDFG or another entity approved by the BLM, USFWS, and Riverside County, in consultation with CDFG, be named a third party beneficiary of the conservation easement. The project owner will obtain approval of the BLM, USFWS, CDFG, and Riverside County of the terms of any transfer of fee title or conservation easement to the compensation lands.

c. **Initial Protection and Habitat Improvement.** The project owner will fund activities that the BLM and Riverside County require for the initial protection and habitat improvement of the compensation lands. These activities will vary depending on the condition and location of the land acquired, but may include trash removal, construction and repair of fences, invasive plant removal, and similar measures to protect habitat and improve habitat quality on the compensation lands. The costs of these activities are estimated to be $330 per acre of compensation land, but actual costs will vary depending on the measures that are required for the compensation lands. A non-profit organization, CDFG or another public agency may hold and expend the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to California Government Code section 65965), if it meets the approval of the BLM and Riverside County in consultation with USFWS and CDFG, and if it is authorized to participate in implementing the required activities on the compensation lands. If CDFG takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFG or its designee.

d. **Property Analysis Record.** Upon identification of the compensation lands, the project owner will conduct a Property Analysis Record (PAR; Center for Natural Lands Management 2012) or PAR-like analysis to establish the appropriate amount of the long-term maintenance and management fund to pay the in-perpetuity management of the compensation lands. The PAR or PAR-like analysis must be approved by the BLM, Riverside County, USFWS, and CDFG before it can be used to establish funding levels or management activities for the compensation lands.

e. **Long-term Maintenance and Management Funding.** The project owner will provide money to establish an account with non-wasting capital that will be used to fund the long-term maintenance and management of the compensation lands. The amount of money to be paid will be determined through an approved PAR or PAR-like analysis conducted for the compensation lands. Until an approved PAR or PAR-like analysis is conducted for the compensation lands, the amount of required funding is initially estimated to be $1,450 for every acre of compensation lands. If compensation lands will not be identified and a PAR or PAR-like analysis completed within the time period specified for this payment, the project owner will either: (i) provide initial payment equal to the amount of $1,450 multiplied by the number of acres the project owner proposes to acquire for compensatory mitigation; or (ii) provide security to the BLM

and Riverside County under subsection (g), "Mitigation Security," below, in an amount equal to $1,450 multiplied by the number of acres the project owner proposes to acquire for compensatory mitigation. The amount of the required initial payment or security for this item will be adjusted for any change in the project Disturbance Area. If an initial payment is made based on the estimated per-acre costs, the project owner will deposit additional money as may be needed to provide the full amount of long-term maintenance and management funding indicated by a PAR or PAR-like analysis, once the analysis is completed and approved. If the approved analysis indicates less than $1,450 per acquired acre will be required for long-term maintenance and management, the excess paid will be returned to the project owner. The project owner must obtain the BLM and Riverside County's approval of the entity that will receive and hold the long-term maintenance and management fund for the compensation lands. The BLM and Riverside County will consult with USFWS and CDFG before deciding whether to approve an entity to hold the project's long-term maintenance and management funds.

The project owner will ensure that an agreement is in place with the long-term maintenance and management fund holder/manager to ensure the following requirements are met:

i. **Interest.** Interest generated from the initial capital long-term maintenance and management fund will be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action that is approved by the BLM and Riverside County and is designed to protect or improve the habitat values of the compensation lands.

ii. **Withdrawal of Principal.** The long-term maintenance and management fund principal will not be drawn upon unless such withdrawal is deemed necessary by the BLM, USFWS, CDFG, and Riverside County or by the approved third-party long-term maintenance and management fund manager, to ensure the continued viability of the species on the compensation lands.

iii. **Pooling Long-Term Maintenance and Management Funds.** An entity approved to hold long-term maintenance and management funds for the project may pool those funds with similar non-wasting funds that it holds from other projects for long-term maintenance and management of compensation lands. However, for reporting purposes, the long-term maintenance and management funds for this project must be tracked and reported individually to the BLM, USFWS, CDFG, and Riverside County.

f. **Other Expenses.** In addition to the costs listed above, the project owner will be responsible for all other costs related to acquisition of compensa-

tion lands and conservation easements, including but not limited to the title and document review costs incurred from other state agency reviews, overhead related to providing compensation lands to CDFG or an approved third party, escrow fees or costs, environmental contaminants clearance, and other site cleanup measures.

g. **Mitigation Security.** No fewer than 30 days prior to ground disturbance, the project owner will provide financial assurances to the BLM and Riverside County to guarantee that an adequate level of funding is available to implement any of the mitigation measures required by this condition that are not completed prior to the start of ground-disturbing project activities. Financial assurances will be provided to the BLM, USFWS, CDFG, and Riverside County in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security") approved by the BLM, USFWS, CDFG, and Riverside County. The actual costs to comply with this condition will vary depending on the actual costs of acquiring compensation habitat, the costs of initially improving the habitat, and the actual costs of long-term management as determined by a PAR report. Prior to submitting the Security to the BLM, USFWS, CDFG, and Riverside County, the project owner will obtain the BLM, USFWS, CDFG, and Riverside County's approval of the form of the Security. The BLM, USFWS, CDFG, and Riverside County may draw on the Security if the BLM, USFWS, CDFG, and Riverside County determine the project owner has failed to comply with the requirements specified in this condition. The BLM, USFWS, CDFG, and Riverside County may use money from the Security solely for implementation of the requirements of this condition. The BLM, USFWS, CDFG, and Riverside County's use of the Security to implement measures in this condition may not fully satisfy the project owner's obligations under this condition, and the project owner remains responsible for satisfying the obligations under this condition if the Security is insufficient. The unused Security will be returned to the project owner in whole or in part upon successful completion of the associated requirements in this condition.

Security for the requirements of this condition will be calculated as shown in Table 4.3-4. However, regardless of the amount of the security or actual cost of implementation, the project owner will be responsible for implementing all aspects of this condition, including acquisition and protection of additional habitat acreage if necessary to compensate for all impacts listed in this mitigation measure.

Table 4.3-4. Biological Resource Compensation/Mitigation Cost Estimate[1] and Table of Estimated Costs[2]

Task	Cost
1. Land Acquisition	$1,000 per acre[3]
2. Level 1 Environmental Site Assessment (estimated 160-acre average parcel size)	$3,000 per parcel[4]

Table 4.3-4. Biological Resource Compensation/Mitigation Cost Estimate[1] and Table of Estimated Costs[2]

Task		Cost
3.	Appraisal	$5,000 per parcel
4.	Initial site work – clean-up, enhancement, restoration	$330 per acre[5]
5.	Closing and Escrow Costs – 1 transaction includes landowner to third party and third party to agency	$5,000 per parcel
6.	Biological survey for determining mitigation value of land (habitat based with species specific augmentation)	$5,000 per parcel
7.	Third party administrative costs – includes staff time to work with agencies and landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; review of acquisition documents; assembling acres to acquire; etc.	10% of land acquisition cost (#1)
8.	Agency costs to review and determine accepting land donation – includes 2 physical inspections; review and approval of the Level 1 ESA assessment; review of all title documents; drafting deed and deed restrictions; issue escrow instructions; mapping the parcels.	15% of land acquisition cost (#1) × 1.17 (17% of the 15% for overhead)
	Subtotal - Acquisition & Initial Site Work	**$ $3,430,379.25**
9.	Long-term Management and Maintenance (LTMM) Fund – includes land management; enforcement and defense of easement or title [short- and long-term]; monitoring; etc.	$1,450 per acre[6]
	Total (if compensation not implemented through NFWF account)	**$ $6,243,104.25**
	NFWF Fees	
10.	Establish the project specific account	$12,000
11.	NFWF management fee for acquisition & initial site work	3% of SUBTOTAL
12.	NFWF Management fee for LTMM Fund	1% of LTMM Fund
	Total for deposit in REAT-NFWF Project-Specific Account	**$ $6,386,142.88**

1 - All costs are best estimates as of fall 2011. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
2 - Companion table to the excel spreadsheet with formulas.
3 - Generalized estimate taking into consideration a likely jump in land costs due to demand, and an 18- to 24-month window to acquire the land after agency decisions are made. If the agencies, developer, or third party has better, credible information on land costs in the specific area where project-specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
4 - For the purposes of determining costs, a parcel is 160 acres.
5 - Based on information from CDFG.
6 - Estimate for purposes of calculating general costs. The actual long term management and maintenance costs will be determined using a Property Assessment Report (PAR) tailored to the specific acquisition.

h. The project owner may elect to comply with the requirements in this condition for acquisition of compensation lands, initial protection and habitat improvement on the compensation lands, or long-term maintenance and management of the compensation lands, or any combination of these three requirements, by providing funds to implement those measures into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF). To use this option, the project owner must make an initial deposit to the REAT Account in an amount equal to the estimated costs (as set forth in the Security section of this condition) of implementing the requirement and additional fees,

management funds, and other costs associated with the NFWF account. If the actual cost of the acquisition, initial protection and habitat improvements, or long-term funding is more than the estimated amount initially paid by the project owner, the project owner will make an additional deposit into the REAT Account sufficient to cover the actual acquisition costs, the actual costs of initial protection and habitat improvement on the compensation lands, and the long-term funding requirements as established in an approved PAR or PAR-like analysis. If those actual costs or PAR projections are less than the amount initially transferred by the Applicant, the remaining balance will be returned to the project owner.

i. The responsibility for acquisition of compensation lands may be delegated to a third party other than NFWF, such as a non-governmental organization supportive of desert habitat conservation, by written agreement of the BLM, USFWS, CDFG, and Riverside County. Such delegation will be subject to approval by the BLM and Riverside County, in consultation with CDFG and USFWS, prior to land acquisition, enhancement or management activities. Agreements to delegate land acquisition to an approved third party, or to manage compensation lands, will be executed and implemented within 18 months of the BLM and Riverside County's certification of the project.

j. The project owner may choose to compensate and mitigate for impacts to state-listed endangered species pursuant to §2081 of the California Endangered Species Act using one or both of the "in-lieu fee" or "advance mitigation" mechanisms set forth in AB 13. Compensation lands acquired through AB 13 may in whole or in part satisfy the compensation habitat requirements set forth in this mitigation measure, only to the extent that they do in fact provide habitat values and mitigation for significant impacts to the species and biological resources identified above, and are consistent with the selection criteria described above.

MM VEG-7 **Mitigate Direct Impacts to Special-Status Plants.** This mitigation measure provides further detail and specificity to the Pre-construction Surveys for Special-Status Plant Species and Cacti provided in AM BIO-3. The project owner will mitigate impacts to Emory's crucifixion thorn (CRPR 2) on the solar generator site and direct impacts to any other CRPR 1 or 2 ranked plants that may be impacted by gen-tie line construction, including impacts to Harwood's woollystar (CRPR 1) on gen-tie Alternative E, through one or a combination of the following strategies.

1. **Avoidance.** Project design will avoid at minimum 75 percent of the Emory's crucifixion thorn, Harwood's woollystar, and other CRPR 1 or 2 ranked plants occurrences within the project boundaries or other work areas, including the gen-tie line, and will provide a minimum 100-foot buffer area surrounding each avoided occurrence, where no project activities will take place.

2. **Off-site compensation.** The project owner will provide compensation lands consisting of occupied Emory's crucifixion thorn, Harwood's woollystar or

other CRPR 1 or 2 ranked plants, habitat at a 1:1 ratio for any occupied habitat affected by the project, according to the terms described in MM VEG-6. Occupied habitat will be calculate on the project site and on the compensation lands as including each special status plant occurrence and a surrounding 100-foot buffer area. Off-site compensation will be incorporated into the project's Habitat Compensation Plan, for review and approval by the BLM, Riverside County, and the Resource Agencies.

3. **Salvage.** It is not known whether salvage is a feasible mitigation strategy for Emory's crucifixion thorn or most other special-status plants. For Emory's crucifixion thorn, the project owner will consult with Rancho Santa Ana Botanic Garden (RSABG) regarding the success of salvage efforts for this species at the Desert Sunlight Solar Farm Project site. If the strategy has been shown to be feasible, then the project owner will prepare and implement an Emory's Crucifixion Thorn Salvage and Relocation Plan, to be reviewed and approved by the BLM, Riverside County EPD, and the Resource Agencies, prior to disturbance of any occupied Emory's crucifixion thorn habitat. Emory's crucifixion thorn on private lands may also be subject to the provisions of the California Desert Native Plants Act. The project owner will contract with RSABG or another entity with comparable experience and qualifications, to salvage at minimum 75 percent of Emory's crucifixion thorn individuals from the proposed project site and transfer them to a suitable off-site location approved by BLM. If special-status plants are salvaged from non-BLM land, then all salvage planning and activities will be subject to review and approval by Riverside County EPD. For other special-status plants (i.e., on gen-tie Alternative E, if they occur), the project owner will consult with the BLM botanist and/or Riverside County (as applicable), along with RSABG or another qualified entity, to develop an appropriate experimental salvage and relocation strategy, based on the life history of the species affected. The Plan will include at minimum: (a) collection/salvage measures for plants or seed banks, to retain intact soil conditions and maximize success likelihood; (b) details regarding storage of plants or seed banks; (c) location of the proposed recipient site, and detailed site preparation and plant introduction techniques details for top soil storage, as applicable; (d); time of year that the salvage and replanting or seeding will occur and the methodology of the replanting; (e) a description of the irrigation, if used; (f) success criteria; and (g) a detailed monitoring program, commensurate with the Plan's goals.

4. **Horticultural propagation and off-site introduction.** If salvage and relocation is not believed to be feasible for Emory's crucifixion thorn or other special-status plants, then the project owner will consult with RSABG or another qualified entity, to develop an appropriate experimental propagation and relocation strategy, based on the life history of the species affected. The Plan will include at minimum: (a) collection/salvage measures for plant materials or seed banks, to retain intact soil conditions and maximize success likelihood; (b) details regarding storage of plant, plant materials, or seed banks; (c) location of the proposed propagation facility, and proposed methods; (d);

time of year that the salvage and other practices will occur; (e) success criteria; and (f) a detailed monitoring program, commensurate with the Plan's goals.

MM VEG-8 Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas. The project owner will implement all mitigation measures and conditions contained within the Streambed Alteration Agreement obtained from the California Department of Fish and Game for impacts to jurisdictional areas, as well as any requirements of the Regional Water Quality Control Board or the U.S. Army Corps of Engineers, upon determination of jurisdiction and permit issuance by all three agencies (see MM WAT-1). In addition, the following Best Management Practices will be implemented during all construction activity in or near ephemeral drainages:

1. Vehicles and equipment will not operate in ponded or flowing water except as described in the Streambed Alteration Agreement.
2. The project Proponent will minimize road building, construction activities, and vegetation clearing within ephemeral drainages to the extent feasible.
3. The project Proponent shall prevent water containing mud, silt, or other pollutants from grading or other activities to enter ephemeral drainages or be placed in locations that may be subjected to high storm flows.
4. Spoil sites will not be located within 30 feet from the boundaries of drainages or in locations that may be subjected to high storm flows, where spoils might be washed back into drainages.
5. Raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to vegetation or wildlife resources, resulting from project-related activities, will not contaminate the soil and/or entering ephemeral drainages. The project owner shall ensure that safety precautions specified by this measure, as well as all other safety requirements of other measures and permit conditions are followed during all phases of the project.
6. When operations are completed, any excess materials or debris will be removed from the work area. No rubbish will be deposited within 150 feet of the high water mark of any drainage during construction, operation, and decommissioning the project.
7. No equipment maintenance will occur within 150 feet of any category 3, 4, or 5 streambed or any streambed greater than 10 feet wide and no petroleum products or other pollutants from the equipment will be allowed to enter these areas or enter any off-site state-jurisdictional waters under any flow.
8. With the exception of the drainage control system installed for the project, the installation of bridges, culverts, or other structures will be such that water flow (velocity and low flow channel width) is not impaired. Bottoms of temporary culverts will be placed at or below stream channel grade.

9. No broken concrete, debris, soil, silt, sand, bark, slash, sawdust, rubbish, or other organic or earthen material from any construction or associated activity of whatever nature will be allowed to enter into, or placed where it may be washed by rainfall or runoff into, off-site state-jurisdictional waters.
10. Stationary equipment such as motors, pumps, generators, and welders, located within or adjacent to a drainage, will be positioned over drip pans. Stationary heavy equipment will have suitable containment to handle a catastrophic spill/leak. Clean up equipment such as brooms, absorbent pads, and skimmers will be on site prior to the start of construction.
11. The cleanup of all spills will begin immediately. The BLM, the State of California Department of Toxic Substances Control, and Riverside County will be notified immediately by the project owner of any spills and will be consulted regarding clean-up procedures.
12. Non-Native Vegetation Removal. The project owner will remove any non-native vegetation (consistent with the Integrated Weed Management Plan, MM VEG-9) from any drainage on the project site that requires the placement of a bridge, culvert, or other structure. Removal will be done at least twice annually (spring/summer) throughout the life of the project.

MM VEG-9 **Prepare and Implement an Integrated Weed Management Plan.** This mitigation measure provides further detail and specificity to the Integrated Weed Management Plan described in AM BIO-2. The project owner will contract a qualified biologist to prepare and implement a Weed Management Plan that meets the approval of the BLM and Riverside County EPD, in consultation with the JTNP, CDFG, and USFWS. The Weed Management Plan will be approved prior to initial ground disturbance. At minimum, the Weed Management Plan will include the following:

1. An assessment of nonnative and invasive weeds occurring onsite prior to construction activities;
2. An assessment of nonnative and invasive weeds that could be introduced into the project area;
3. A description of methods to be used to survey for the presence of introduced weeds during construction and operation;
4. Monitoring and weed control methods to be employed during operation, consistent with BLM's Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (BLM 2007) and the National Invasive Species Management Plan (NISC 2008);
5. Specific and detailed guidelines for herbicide use to prevent overspray onto surrounding areas where it would adversely affect wildlife or native plants; and
6. Reporting requirements.

The final plan will only include weed control measures with a demonstrated record of success for target weeds, based on the best available information from sources

such as: The Nature Conservancy's The Global Invasive Species Team, Cooperative Extension, California Invasive Plant Council: http://www.cal-ipc.org/_/index.php, and the California Department of Food & Agriculture Encyclopedia: http://www.cdfa.ca.gov/phpps/ipc/_hp. The methods will meet the following criteria:

1. **Manual.** Well-timed removal of plants or seed heads with hand tools; seed heads and plants must be disposed of in accordance with guidelines from the Riverside County Agricultural Commissioner.
2. **Chemical.** Herbicides known to have residual toxicity, such as pre-emergents and pelts, will not be used in natural areas or within channels (engineered or not) where they could run off into downstream areas. Only the following application methods may be used: wick (wiping onto leaves); inner bark injection; cut stump; frill or hack & squirt (into cuts in the trunk); basal bark girdling; foliar spot spraying with backpack sprayers or pump sprayers at low pressure or with a shield attachment to control drift, and only on windless days, or with a squeeze bottle for small infestations

In addition to describing weed eradication and control methods, and a reporting plan for weed management during and after construction, the final Weed Management Plan will include at minimum the following Best Management Practices to prevent the spread and propagation of weeds:

a. Limit the extent of any vegetation and/or ground disturbance to the absolute minimum needed, and limit ingress and egress to defined routes.

b. Install and maintain vehicle wash and inspection stations and closely monitor the types of materials brought onto the site.

c. Reestablish soil stability and vegetation on temporarily disturbed sites (measures and performance standards to be consistent with the Vegetation Resources Management Plan, described in MM VEG-5).

d. Monitoring and timely implementation of control measures to ensure early detection and eradication for weed invasions. Weed infestations must be controlled or eradicated as soon as possible upon discovery, and before they go to seed, to prevent further expansion.

e. Use only certified weed-free straw or hay bales used for sediment barrier installations, and certified weed-free seed.

f. Reclamation, revegetation, or restoration will occur on all temporarily disturbed areas, including, but not limited to, temporary access roads, construction work temporary lay-down areas, and staging areas (consistent with MM VEG-5).

g. Control weeds in areas where dust control, irrigation, and solar panel washing take place.

h. Prohibit on-site storage or disposal of mulch or green waste from weed material to prevent inadvertent introduction and spread of invasive plants beyond the immediate vicinity of the project area and possibly into rare plant popula-

tions off-site. Mulch or green waste will be removed from the site in a covered vehicle to prevent seed dispersal, and transported to a licensed landfill or composting facility.

i. Indicate where herbicides may be used, which herbicides, and specify techniques to be used to avoid chemical drift or residual toxicity to special-status plants, consistent with consistent with BLM's Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (BLM 2007) and guidelines provided by the Nature Conservancy's The Global Invasive Species Team: http://www.invasive.org/gist/products.html.

j. Avoid herbicide use or other control methods in or around any environmentally sensitive areas identified within or adjacent to the project site.

Nonnative and invasive weed infestations will be flagged by the Designated Biologist or Biological Monitor and controlled, using either mechanical (hand pulling, mowing) or chemical methods as approved by the BLM and, as appropriate, Riverside County. Only state and BLM-approved herbicides will be used, and all herbicide applicators will possess a qualified herbicide applicator license from the state. All herbicide applications will follow U.S. Environmental Protection Agency label instructions and be performed in accordance with federal, state, and local laws and regulations.

From the time construction begins and throughout the life of the project, surveying for new invasive weed populations and the monitoring of identified and treated populations will be required within the project area. Surveying and monitoring for weed infestations will occur at least two times per year (timed to occur early and late in the growing season). Treatment of all identified weed populations will occur at a minimum of once annually. When no new seedlings or resprouts are observed at treated sites for three consecutive, normal rainfall years, the weed population can be considered eradicated and weed control efforts may cease for that impact site.

MM VEG-10 Prepare and Implement a Desert Dry Wash Woodland Monitoring and Reporting Plan. The project owner will contract a qualified biologist to prepare and submit a Desert Dry Wash Woodland Monitoring and Reporting Plan to BLM, Riverside County, and the Resource Agencies for review and approval and to the JTNP for review and comment prior to commencing project-related pumping activities. Upon approval, the project owner will finalize and implement the Plan. The Desert Dry Wash Woodland Monitoring and Reporting Plan will outline the following information and actions:

1. Prior to project operations, the baseline health and vigor of groundwater-dependent plant species (principally desert ironwood and blue palo verde but also other species such as smoke tree and crucifixion thorn would be included) will be recorded within four zones: immediately off-site at the project boundary, and at ¼-mile, ½-mile and 1-mile distances from proposed project groundwater supply well locations. At least one "control" site, at least 2 miles from the project site, will also be sampled. The number of individuals for

each of the target species to be sampled at each site will be large enough to provide valid comparison of data among sites.

2. A qualified botanist or plant physiologist will develop or adapt a sampling protocol to be carried out in desert dry wash woodland at each sampling zone (above) and the control site to monitor stress and mortality of target plants once operations begin. The protocol will include a measure of pre-dawn water potential or other appropriate indictor or water stress, as measured by standard plant physiology techniques.
3. The Desert Dry Wash Woodland Monitoring and Reporting Plan will identify what constitutes a significant difference in plant stress or mortality under this mitigation measure. If a significant difference in plant stress or mortality is shown at one or more sample locations in comparison to the control site, the project owner will coordinate with BLM, Riverside County, and CDFG to interpret the results. The sample site and control site data will be evaluated in terms of the project's groundwater usage, climate factors, and groundwater monitoring data collected under MM WAT-3. If plant stress or mortality is determined to be related to project activities, then the project owner will either refrain from pumping, reduce groundwater pumping to allow for recovery of the groundwater table, or provide additional habitat compensation as described below.

Monthly Desert Dry Wash Woodland Monitoring summary memos will be submitted to BLM, CDFG, and Riverside County during the construction period of the project. In addition, annual Desert Dry Wash Woodland Monitoring reports will be submitted for at least the first 3 years following completion of construction of the project or until the defined success criteria are achieved, whichever is later. The summary memos will contain the monitoring data required as part of the monitoring program requirements under MM WAT-3. In addition, each Desert Dry Wash Woodland Monitoring Report will provide maps and text discussion of each study site, changes in plant health and vigor, changes in groundwater levels in the production wells, and the year's monitoring data.

If results of the groundwater monitoring program under MM WAT-3 indicate that the project pumping has resulted in water level decline of 1 foot or more below the baseline trend, and vegetation monitoring for plant stress, mortality, and water potential have documented one or more of the sampling sites for the two groundwater-dependent plant species as reaching the threshold (above), the project owner will reduce groundwater pumping until water levels stabilize or recover, provide for temporary supplemental watering, or compensate for additional impacts to desert dry wash woodland (Blue Palo Verde–Ironwood Woodland) at the ratio of 3:1, consistent with MM VEG-6. Estimated acreage of additional dry wash woodland impacts will be submitted to BLM, Riverside County, and the Resource Agencies for approval. Upon approval, the project owner will initiate compensation according to the requirements and conditions for habitat compensation as described in MM VEG-6.

At the conclusion of the three-year monitoring period or until the defined success criteria are achieved, whichever is later, for Desert Dry Wash Woodland following completion of project construction, the project owner, Riverside County, and BLM will jointly evaluate the effectiveness of the Desert Dry Wash Woodland Monitoring and Reporting Plan and determine if monitoring frequencies or procedures should be revised, extended to the operation and decommissioning periods, or eliminated. Should additional data be forthcoming to demonstrate that this potential impact is not verifiable or attributable to this specific project or found inconsistent with state or federal statute, it may be modified or eliminated.

Residual Impacts and Unavoidable Adverse Effects

Some of the mitigation measures described above would mitigate adverse impacts to vegetation resources by preventing the impacts from occurring. For example, MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan) would prevent the introduction and spread of invasive weeds. Other mitigation measures would minimize adverse impacts on the project site and prevent them in adjacent off-site habitats, such as MM VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) and MM VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat) requires acquisition and management of off-site vegetation and habitat in perpetuity to offset the permanent loss of vegetation and habitat on the project site. This measure, while compensating for impacts to vegetation resources, would not prevent those impacts from occurring. Even with off-site compensation at recommended ratios, there would be a net loss of the native vegetation and related resources (including habitat and streambed values) of 1,208 acres.

With the implementation of Mitigation Measures VEG-1 through MM VEG-10, residual adverse impacts (i.e., impacts remaining after application of mitigation) to vegetation resources would be (1) the net loss of vegetation and habitat on the project site; (2) the direct effects of dust, and other disturbances to adjacent off-site habitat during construction, operation, and decommissioning of the facility; (3) the net loss of special-status plant occurrences on the project site; and (4) the net loss of state-jurisdictional streambeds and associated habitat on the site and, potentially, off-site, if groundwater pumping causes off-site impacts. These impacts are described above, under direct impacts of project construction.

4.3.8 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would have the same project boundaries as Alternative 4, except that it would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA), as shown on Figure 2-9, Alternative 5: Solar Project Excluding WHMA, in Appendix A. Alternative 5 would encompass 1,161 acres. It would not incorporate any substantial changes to construction, operations, maintenance, or decommissioning from those described for Alternative 4.

Construction

Direct Effects

Direct effects to vegetation resources during construction of Alternative 5 would be as described in Section 4.3.7 for the direct construction effects of Alternative 4, except that the acreage of impacts would be reduced by 47 acres, from 1,208 to 1,161 (see Table 4.3-1). Impacts to state-jurisdictional streambeds would be reduced from 113 acres to 110 acres under Alternative 5. Total impacts to state jurisdictional areas would be reduced from 258.5 to 254.4 acres.

Indirect Effects

Indirect effects to vegetation resources during construction of Alternative 5 would be as described in Section 4.3.7 for the indirect construction effects of Alternative 4.

Operation and Maintenance

Direct Effects

Direct effects to vegetation resources during O&M of Alternative 5 would be as described in Section 4.3.7 for the direct O&M effects of Alternative 4.

Indirect Effects

Indirect effects to vegetation resources during O&M of Alternative 5 would be as described in Section 4.3.7 for the indirect O&M effects of Alternative 4.

Decommissioning

Direct Effects

Direct effects to vegetation resources during decommissioning of Alternative 5 would be as described in Section 4.3.7 for the direct decommissioning effects of Alternative 4.

Indirect Effects

Indirect effects to vegetation resources during decommissioning of Alternative 5 would be as described in Section 4.3.7 for the indirect decommissioning effects of Alternative 4.

Mitigation Measures

Required mitigation measures to reduce or minimize impacts of Alternative 5 to vegetation resources are the same as those required in Section 4.3.7 for Alternative 4. The total compensation requirement under Mitigation Measure VEG-6 would be reduced due to the reduced acreage of project disturbance.

Residual Impacts and Unavoidable Adverse Effects

Residual effects of Alternative 5 to vegetation resources would be as described in Section 4.3.7 for the residual effects of Alternative 4, except that the acreage of impacts would be reduced by 47 acres, from 1,208 to 1,161 (see Table 4.3-1).

4.3.9 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would remain in the same location as Alternative 4 and would use the same project boundaries as Alternative 4 except that it would exclude the 155-acre southern parcel of the project and a small portion of the northern parcel that contains a sensitive plant species, Emory's crucifixion thorn, as shown on Figure 2-10, Alternative 6: Reduced Footprint Solar Project, in Appendix A. Alternative 6 would encompass 1,044 acres. The areas cleared of vegetation would be slightly less than for Alternative 4 (approximately100 acres). The area permanently covered by at-grade items would also be slightly reduced from Alternative 4 (less than 10 acres). Because Alternative 6 would not require use of two separate parcels of land, the alternative would not require an underground electrical connection across the wash. Alternative 6 would not incorporate any substantial changes to construction, operations, maintenance, or decommissioning from those described for Alternative 4.

Construction

Direct Effects

Direct effects to vegetation resources during construction of Alternative 6 would be as described in Section 4.3.7 for the direct construction effects of Alternative 4, except that the acreage of impacts would be reduced by 164 acres, from 1,208 to 1,044 (see Table 4.3-1) and direct impacts to Emory's crucifixion thorn would be avoided. Impacts to Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) would be substantially reduced, from 180 to 98 acres (a 46 percent reduction in impacts). The Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) is a special-status plant community; it provides habitat elements and structure not available in surrounding Creosote Bush Scrub (Sonoran Desert Scrub); and is closely associated with state-jurisdictional streambeds and episodic hydrologic systems. Impacts to state-jurisdictional streambeds would be reduced from 113 acres to 79 acres under Alternative 6. Total impacts to state jurisdictional areas would be reduced from 258.5 to 163.5 acres.

Indirect Effects

Indirect effects to vegetation resources during construction of Alternative 6 would be as described in Section 4.3.7 for the indirect construction effects of Alternative 4.

Operation and Maintenance

Direct Effects

Direct effects to vegetation resources during O&M of Alternative 6 would be as described in Section 4.3.7 for the direct O&M effects of Alternative 4.

Indirect Effects

Indirect effects to vegetation resources during O&M of Alternative 6 would be as described in Section 4.3.7 for the indirect O&M effects of Alternative 4.

Decommissioning

Direct Effects

Direct effects to vegetation resources during decommissioning of Alternative 6 would be as described in Section 4.3.7 for the direct decommissioning effects of Alternative 4.

Indirect Effects

Indirect effects to vegetation resources during decommissioning of Alternative 6 would be as described in Section 4.3.7 for the indirect decommissioning effects of Alternative 4.

Mitigation Measures

Required mitigation measures to reduce or minimize impacts of Alternative 6 to vegetation resources are the same as those required in this Section 4.3.7 for Alternative 4, with the following two exceptions: (1) the wording of MM VEG-6 would be unchanged, but the total compensation acreage requirement for Blue Palo Verde–Desert Ironwood Woodlands (Desert Dry Wash Woodland) would be reduced in proportion to the 82-acre (46%) reduction in impacts to this community; and (2) MM VEG-7 would not apply because the project design would avoid direct impacts to Emory's crucifixion thorn.

Residual Impacts and Unavoidable Adverse Effects

Residual effects of Alternative 6 to vegetation resources would be as described in Section 4.3.7 for the residual effects of Alternative 4, except that the acreage of impacts would be reduced by 164 acres, from 1,208 to 1,044 (see Table 4.3-1).

4.3.10 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet. The areas cleared of vegetation would be slightly less than for Alternative 4 (about 100 acres). The area permanently covered by at-grade items would also be slightly reduced from Alternative 4 (less than 10 acres). Because Alternative 7 would not require use of two separate parcels of land, the alternative would not require an underground electrical connection across the wash. Alternative 7 would not incorporate any substantial changes to construction, operations, maintenance, or decommissioning from those described for Alternative 4.

Construction

Direct Effects

Direct effects to vegetation resources during construction of Alternative 7 would be as described in Section 4.3.7 for the direct construction effects of Alternative 4, except that the acreage of impacts would be reduced by 164 acres, from 1,208 to 1,044 (see Table 4.3-1) and direct impacts to crucifixion thorn would be avoided. Impacts to Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) would be substantially reduced, from 180 to 98 acres (a 46 percent reduc-

tion in impacts). The Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland)is a special-status plant community; it provides habitat elements and structure not available in surrounding Creosote Bush Scrub (Sonoran Desert Scrub); and is closely associated with state-jurisdictional streambeds and episodic hydrologic systems. Impacts to state-jurisdictional streambeds would be reduced from 113 acres to 79 acres under Alternative 7. Total impacts to state jurisdictional areas would be reduced from 258.5 to 163.5 acres.

Indirect Effects

Indirect effects to vegetation resources during construction of Alternative 7 would be as described in Section 4.3.7 for the indirect construction effects of Alternative 4.

Operation and Maintenance

Direct Effects

Direct effects to vegetation resources during O&M of Alternative 7 would be as described in Section 4.3.7 for the direct O&M effects of Alternative 4.

Indirect Effects

Indirect effects to vegetation resources during O&M of Alternative 7 would be as described in Section 4.3.7 for the indirect O&M effects of Alternative 4.

Decommissioning

Direct Effects

Direct effects to vegetation resources during decommissioning of Alternative 7 would be as described in Section 4.3.7 for the direct decommissioning effects of Alternative 4.

Indirect Effects

Indirect effects to vegetation resources during decommissioning of Alternative 7 would be as described in Section 4.3.7 for the indirect decommissioning effects of Alternative 4.

Mitigation Measures

Required mitigation measures to reduce or minimize impacts of Alternative 7 to vegetation resources are the same as those required in this Section 4.3.7 for Alternative 4, with the following two exceptions: (1) the wording of MM VEG-6 would be unchanged, but the total compensation acreage requirement for Blue Palo Verde–Desert Ironwood Woodlands (Desert Dry Wash Woodland) would be reduced in proportion to the 82-acre (46%) reduction in impacts to this community; and (2) MM VEG-7 would not apply because the project design would avoid direct impacts to Emory's crucifixion thorn.

Residual Impacts and Unavoidable Adverse Effects

Residual effects of Alternative 7 to vegetation resources would be as described in Section 4.3.7 for the residual effects of Alternative 4, except that the acreage of impacts would be reduced by 164 acres, from 1,208 to 1,044 (see Table 4.3-1).

4.3.11 Alternative A – No Gen-Tie

This No Action Alternative under NEPA defines the scenario that would exist if the proposed gen-tie line were not constructed and no plan amendment was issued. If this No Action Alternative were selected, the impacts of project construction, operation, decommissioning; as well as cumulative impacts of the project's gen-tie line, would not occur. There would be no project-related disturbance of the ground at the tower locations and pull sites, no disturbance of desert vegetation and habitat, and no installation of transmission equipment.

4.3.12 Alternative B – Proposed Gen-Tie (Shared Towers)

Alternative B is the Applicant's proposed gen-tie, which would utilize transmission infrastructure to be developed for the adjacent Desert Sunlight Solar Farm Project by sharing the approved transmission ROW and the gen-tie towers (see Figure 2-11 in Appendix A). At the time of commencement of analysis for this EIS in September, 2011, the Desert Sunlight approved gen-tie has not yet been constructed; therefore, the effects of constructing, operating, and decommissioning gen-tie Alternative B are analyzed here without the presumption that the approved Desert Sunlight gen-tie would be built. Please see the Cumulative Impacts section, below, for a separate analysis of the cumulative impacts of gen-tie Alternative B and the approved Desert Sunlight gen-tie. Implementation of Alternative B, as it is described and analyzed here, would require independent construction, operation, and decommissioning of this transmission line.

The proposed gen-tie right-of-way (ROW) is 12.1 miles long and 160 feet wide, totaling 235 acres. Construction disturbances within the ROW would include construction of new permanent or temporary access roads; 73 transmission structures; 5 splicing/pull sites; and 20 guard structures. The specific locations of these project components have not been determined. The materials and equipment staging areas and lay-down areas would be located within the solar facility site, and no additional habitat disturbance would be needed for these project components (see Chapter 2). The Applicant estimates total anticipated disturbance to vegetation for gen-tie Alternative B as 92 acres. Based on the proportions of each vegetation type along the alignment, this analysis estimates that 41 acres of Creosote Bush Scrub (Sonoran Desert Scrub) and 51 acres of Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) would be impacted by permanent or long-term project disturbances.

In this analysis, an impact that might be considered temporary in other parts of California will be considered long-term or permanent due to these very slow natural recovery rates (see Section 4.3.1). Examples of permanent impacts of gen-tie line construction to vegetation include any new, permanent access roads and the footprints of new towers. Other ground disturbance restricted solely to the construction phase, such as grading roads and clearing vegetation within staging and pulling areas, are analyzed here as long-term impacts, with requirements for mitigation appropriate to the long-term nature of the disturbance.

Construction

Construction activities associated with Alternative B could directly affect vegetation, special-status plants, and jurisdictional resources through the long-term and permanent loss and degradation of native vegetation and its habitat values, loss of special-status plants, and loss or alteration of jurisdictional streambeds and associated habitat values. These effects, and mitigation measures to reduce the severity of these effects, are discussed below.

Direct Effects

Native Vegetation Including Sensitive Natural Communities. Site preparation and project construction on the proposed gen-tie line would consist of removing or crushing vegetation where necessary, such as along the access roads and tower work sites. Project construction would cause substantial degradation to native vegetation and wildlife habitat. Project construction would result in permanent and long-term impacts to 92 acres of natural vegetation, including 41 acres of Creosote Bush Scrub (Sonoran Desert Scrub) and 51 acres of Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland). Construction traffic and related activities would also cause increased wind erosion and downwind dust, as described in Section 4.3.7. The direct construction impacts to vegetation can be reduced through implementation of required Mitigation Measures VEG-1 through MM VEG-6.

Special-Status Plants. One desert unicorn-plant occurrence was documented on the alignment of gen-tie Alternative B during field surveys for the Desert Sunlight Solar Farm Project (BLM 2011a). Depending on the placement of poles and other work sites, construction of Alternative B could remove that occurrence. Due to the natural history of desert unicorn-plant (perennial herb; sprouts above-ground every few years in response to warm season rains), it is likely that additional, undocumented locations exist along the alignment. Thus, construction of Alternative B could affect additional desert unicorn-plant locations. Desert unicorn-plant is ranked as CRPR 4, and is not a BLM Sensitive Species (see Section 3.3). The impacts to this species, while adverse, would not warrant further mitigation.

State-Jurisdictional Streambeds. Construction of gen-tie Alternative B would impact state-jurisdictional streambeds, as well as the adjacent riparian vegetation (i.e., Blue Palo Verde–Desert Ironwood Woodland, or Desert Dry Wash Woodland) along much of its length. Actual acreage of these impacts would depend on the specific placement of poles and other work sites, but is estimated as 51 acres, based on the proportion of Blue Palo Verde–Ironwood Woodlands (Desert Dry Wash Woodland) along the alignment. Native vegetation would be removed or degraded from these streambed and woodland areas, as described for the proposed solar project. The streambeds would continue to convey water and sediment downslope, but habitat suitability for most native wildlife species would be degraded. These impacts would be offset by implementing Mitigation Measures VEG-1 through MM VEG-6. In addition, implementation of Mitigation Measure VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) would minimize adverse effects of construction activities to jurisdictional streambeds on-site and off-site.

Indirect Effects

Invasive Weeds. In addition to the direct impacts to vegetation, construction of gen-tie Alternative B could have indirect effects to native vegetation, special-status plants, and jurisdictional streambeds off-site, through the introduction or spread of invasive weeds. These impacts are similar to those described in Section 4.3.7 for Alternative 4, but the effects of weed introductions could be proportionally more severe due to the linear nature of the project component.

Weeds are relatively low in abundance and diversity throughout gen-tie Alternative B alignment. However, construction would be expected to introduce or facilitate the spread of invasive non-native plants, including weeds noted on the site during field surveys (Section 3.3) or weeds new to the area. This potential impact would be minimized by Mitigation Measure VEG-9 (Prepare

and Implement an Integrated Weed Management Plan), which would require the project owner to monitor weed occurrence throughout the project area, and to control substantial weed infestations.

Hydrology and Groundwater. Construction of Alternative B could affect off-site vegetation, particularly the Blue Palo Verde–Desert Ironwood Woodlands (Desert Dry Wash Woodland) downstream of work sites, by altering water quality or surface hydrology. If pollutants, silt, or other materials are carried off-site by intermittent stream flows, they could be deposited in downstream washes or could enter the soil or groundwater, where they could adversely affect native woodland vegetation. Implementation of a SWPP (see Section 4.22, Water Resources) and Mitigation Measure VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) during construction would reduce these impacts. Construction of Alternative B would necessitate water use for dust control, but total water usage is expected to be relatively small by comparison with the solar facility site, and no additional impacts to groundwater-dependent vegetation would be expected.

Operation and Maintenance

Operations and maintenance activities associated with Alternative B could directly affect vegetation, special-status plants, and jurisdictional resources due to long-term habitat alteration by access road maintenance (including roadside vegetation management), periodic gen-tie line inspections or maintenance, and consequent dust and other soil disturbances, and ongoing potential to introduce new weed species or facilitate the spread of existing species.

Direct Effects

Native Vegetation Including Sensitive Natural Communities. Gen-tie line vegetation management during operations would necessitate periodic mowing, weeding, or other vegetation control for compatibility with road access and gen-tie operations. Overall impacts of these O&M procedures would prevent recovery of native vegetation and wildlife habitat throughout the life of the project. Disturbed vegetation on the alignment would remain degraded from natural conditions throughout the life of the project, with reduced abundance, cover and height of native shrubs; reduced overall vegetation cover; and increased relative cover of non-native species. These long-term impacts to vegetation can be reduced through implementation of required Mitigation Measures VEG-1 through MM VEG-6. These measures would limit the initial disturbance areas and avoid off-site habitat degradation; require vegetation management on-site to minimize adverse off-site impacts, and require off-site compensation for habitat lost or degraded throughout the life of the project.

Special-Status Plants. Gen-tie line O&M would not affect any special-status plants beyond those that are removed or damaged during initial construction. However, vegetation management for gen-tie operation could cause accidental off-site impacts, due to dust or herbicide drift or off-site hydrology impacts. Mitigation Measures VEG-5 (Prepare and Implement a Vegetation Resources Management Plan) and MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan) would minimize these impacts throughout the life of the project.

State-Jurisdictional Streambeds. Operation and maintenance of the gen-tie would maintain streambeds and associated habitat values throughout the disturbed areas in degraded condition that would no longer provide suitable habitat for most native wildlife species. These impacts

would be offset by implementing Mitigation Measures VEG-1 through MM VEG-6. In addition, implementation of Mitigation Measure VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) would minimize adverse effects of O&M practices to jurisdictional streambeds on-site and off-site.

Indirect Effects

In addition to the direct impacts to vegetation, gen-tie operation could have several indirect impacts to native vegetation, special-status plants, and jurisdictional streambeds off-site, including introduction or spread of invasive weeds.

Invasive Weeds. Operation and maintenance of gen-tie Alternative B would be expected to introduce or facilitate the spread of invasive non-native plants, including weeds noted on the site during field surveys (Section 3.3) or weeds new to the area. This potential impact would be minimized by Mitigation Measure VEG-9 (Prepare and Implement an Integrated Weed Management Plan).

Hydrology and Groundwater. O&M activities associated with gen-tie Alternative B could affect off-site vegetation, particularly the Blue Palo Verde–Desert Ironwood Woodlands (Desert Dry Wash Woodland) downstream of the alignment, by altering water quality or surface hydrology. If pollutants, silt, or other materials are carried off-site by intermittent stream flows, they could be deposited in downstream washes or could enter the soil or groundwater, where they could adversely affect native woodland vegetation. Implementation of Mitigation Measure VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) would reduce these impacts.

Decommissioning

Decommissioning of the gen-tie is summarized in Chapter 2. The expected operational lifetime of the DHSP is 30 years; however its actual life could be longer or shorter. When permanent closure is appropriate, a decommissioning plan will be prepared and submitted to the BLM for review and approval. The decommissioning plan will address the gen-tie as well as the solar facility. Closure strategies may include temporary "mothballing"; removing old facilities and upgrading to newer solar technology; or complete removal of equipment and restoration of the land to BLM approved specifications. Fully decommissioning the site would involve (1) removal and demolition of above-ground structures; (2) dismantling and removing concrete structures to a 3-foot depth; (3) removal of underground utilities within 3 feet of final grade; and (4) excavation and removal of soils, if applicable (see Sections 2.4.6 and 2.9.4).

Impacts to vegetation resources would vary, according to the decommissioning strategy and the intended re-use of the alignment, to be developed prior to actual decommissioning.

Direct Effects

Facilities removal during decommissioning would be expected to take place within the prior-disturbed work areas, addressed as long-term construction impacts in this analysis. Removal or degradation of native vegetation, special-status plants, or state-jurisdictional streambeds would be limited to areas where those resources had recovered naturally or through implementation of the project owner's Vegetation Resources Management Plan (per Mitigation Measure VEG-5). Any potential direct impacts beyond the work areas would be limited to the effects of dust or

similar direct off-site impacts, as discussed above (direct effects of construction). These decommissioning impacts can be reduced through implementation of required Mitigation Measures VEG-1 through MM VEG-6, which are required also for decommissioning. In particular, Mitigation Measure VEG-5 (Prepare and Implement a Vegetation Resources Management Plan) requires the project owner to prepare and implement a supplement to the Vegetation Resources Management Plan during decommissioning, to be as compatible with the proposed re-use of the site and the other components of the decommissioning plan. If the ultimate re-use of the alignment is to return it to natural open space, then the expected recontouring and replanting during decommissioning would have a net benefit to vegetation resources. This potential beneficial impact cannot be evaluated at this time, pending the final re-use decision and the details of the decommissioning plan.

Indirect Effects

The indirect effects of decommissioning to vegetation resources would be similar to the indirect effects described above for project construction. These indirect effects would include the potential for introduction or spread of invasive weeds; and effects to downstream hydrology and associated vegetation. These impacts would be minimized by Mitigation Measures VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) and MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan).

Mitigation Measures

Required mitigation measures to reduce or minimize impacts of Alternative B to vegetation resources are the same as those required in this Section 4.3.7 for Alternative 4, with the following two exceptions: (1) MM VEG-7 would not apply because the alignment would avoid direct impacts to Emory's crucifixion thorn; and (2) MM VEG-10 would not apply because construction, operation, and maintenance of the gen-tie line would not be expected to affect groundwater-dependent vegetation.

Residual Impacts and Unavoidable Adverse Effects

Some of the mitigation measures described above would mitigate adverse impacts to vegetation resources by preventing the impacts from occurring. For example, MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan) would prevent the introduction and spread of invasive weeds. Other mitigation measures would minimize adverse impacts on the project site and prevent them in adjacent off-site habitats, such as MM VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas). MM VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat) requires acquisition and management of off-site vegetation and habitat in perpetuity to offset the permanent loss of vegetation and habitat associated with the project. This measure, while compensating for impacts to vegetation resources, would not prevent those impacts from occurring. With the implementation of Mitigation Measures VEG-1 through MM VEG-9 (excluding MM VEG-7) residual impacts to vegetation resources would be (1) the net loss of vegetation and habitat on the alignment; (2) the direct effects of dust and other disturbances to adjacent off-site habitat during construction, operation, and decommissioning of the gen-tie line; and (3) the net loss of state-jurisdictional streambeds on the alignment. These impacts are described above, under direct impacts of project construction.

4.3.13 Alternative C – Separate Transmission Towers within Same ROW

Alternative C would parallel the approved (but not yet constructed) Desert Sunlight gen-tie line, and would be located on separate towers within the same, or a slightly larger, ROW (Figure 2-14 in Appendix A). Because Alternative B, above, is described and analyzed in Section 4.3.12 as a stand-alone alternative (i.e., without the presumption that the Desert Sunlight gen-tie would be built), the Alternative C design, construction, and impacts would be the same as described for Alternative B. The Alternative C alignment would be the same as Alternative B but would be located approximately 100 feet west of the Desert Sunlight towers. The estimated area of permanent and long-term impacts for Alternative C is 92 acres. Based on the proportions of each vegetation type along the alignment, this analysis estimates that 41 acres of Creosote Bush Scrub (Sonoran Desert Scrub) and 51 acres of Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) would be impacted by permanent or long-term project disturbances.

Construction

Direct Effects

Direct effects to vegetation resources during construction of Alternative C would be as described in Section 4.3.12 for the direct construction effects of Alternative B.

Indirect Effects

Indirect effects to vegetation resources during construction of Alternative C would be as described in Section 4.3.12 for the indirect construction effects of Alternative B.

Operation and Maintenance

Direct Effects

Direct effects to vegetation resources during O&M of Alternative C would be as described in Section 4.3.12 for the direct construction effects of Alternative B.

Indirect Effects

Indirect effects to vegetation resources during O&M of Alternative C would be as described in Section 4.3.12 for the indirect construction effects of Alternative B.

Decommissioning

Direct Effects

Direct effects to vegetation resources during decommissioning of Alternative C would be as described in Section 4.3.12 for the direct construction effects of Alternative B.

Indirect Effects

Indirect effects to vegetation resources during decommissioning of Alternative C would be as described in Section 4.3.12 for the indirect construction effects of Alternative B.

Mitigation Measures

Required mitigation measures to reduce or minimize impacts of Alternative C to vegetation resources are the same as those required in this Section 4.3.7 for Alternative 4, with the following two exceptions: (1) MM VEG-7 would not apply because the alignment would avoid direct impacts to Emory's crucifixion thorn; and (2) MM VEG-10 would not apply because construction, operation, and maintenance of the gen-tie line would not be expected to affect groundwater-dependent vegetation.

Residual Impacts and Unavoidable Adverse Effects

With the implementation of Mitigation Measures VEG-1 through MM VEG-9 (excluding MM VEG-7), residual impacts to vegetation resources would be (1) the net loss of vegetation and habitat on the alignment; (2) the direct effects of dust and other disturbances to adjacent off-site habitat during construction, operation, and decommissioning of the gen-tie line; and (3) the net loss of state-jurisdictional streambeds on the alignment. These impacts are described above, under direct impacts of project construction.

4.3.14 Alternative D – Cross-Valley Alignment

The DHSP gen-tie line Alternative D is the same alignment that was analyzed as the Desert Sunlight gen-tie alignment Alternative A-2 (BLM 2011). Gen-tie Alternative D would parallel the approved Desert Sunlight gen-tie line for approximately 2,400 feet along the east side of Kaiser Road until intersecting with the existing SCE transmission line ROW. At that point, it would turn southeast and run parallel to the existing transmission ROW for 7.2 miles, then turn south for 0.6 mile, continuing due west for 0.5 mile until it turns south across I-10 and continues approximately 1,000 feet (not along any existing feature) to Red Bluff Substation (see Figure 2-15 in Appendix A). The centerline of gen-tie alternative D would be located 140 to 150 feet from the centerline of the existing SCE line, but the new gen-tie alignment would not be within the SCE ROW.

The gen-tie Alternative D ROW would be 10.5 miles long and 160 feet wide, totaling 204 acres. Construction disturbances within the ROW would be similar to those described above for gen-tie Alternative B (Section 4.3.12), including construction of any new permanent or temporary access roads; transmission structures; splicing/pull sites; and guard structures. Please also refer to the discussion of temporary, long-term, and permanent disturbances in Section 4.3.12. The specific locations and numbers of these project components have not been determined. The materials and equipment staging areas and lay-down areas would be located within the solar facility site, and no additional habitat disturbance would be needed for these project components (see Chapter 2). The Applicant has estimated total disturbance to soils and vegetation for gen-tie Alternative D as 86 acres. Based on the proportions of each vegetation type along the alignment, this analysis estimates that 20 acres of Creosote Bush Scrub (Sonoran Desert Scrub), 39 acres of Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland), and 27 acres of disturbed lands (including disused agricultural lands) would be impacted by permanent or long-term disturbances.

Construction

Construction activities associated with Alternative D could directly affect vegetation, special-status plants, and jurisdictional resources through the long-term and permanent loss and degrada-

tion of native vegetation and its habitat values, loss of special-status plants, and loss or alteration of jurisdictional streambeds and associated habitat values. These effects, and mitigation measures to reduce the severity of these effects, are discussed below.

Direct Effects

Native Vegetation Including Sensitive Natural Communities. Site preparation and project construction on the proposed gen-tie line would consist of removing or crushing vegetation where necessary, such as along the access roads and tower work sites. Project construction would cause substantial degradation to native vegetation and wildlife habitat. Project construction would result in permanent and long-term impacts to 86 acres of vegetation, including 20 acres of Creosote Bush Scrub (Sonoran Desert Scrub), 39 acres of Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) and 27 acres of disused agricultural lands. Construction traffic and related activities would also cause increased wind erosion and downwind dust, as described in Section 4.3.7. The direct construction impacts to vegetation can be reduced through implementation of required Mitigation Measures VEG-1 through MM VEG-6.

Special-Status Plants. Two Emory's crucifixion thorn and one desert unicorn-plant occurrence were documented on the alignment of gen-tie Alternative D during field surveys for the Desert Sunlight Solar Farm Project (BLM 2011). Depending on the placement of poles and other work sites, construction of Alternative D could remove those special-status plant occurrences. Due to the natural history of desert unicorn-plant (perennial herb; sprouts above-ground every few years, in response to warm season rains), it is likely that additional, undocumented locations exist along the alignment. Thus, construction of Alternative D could affect additional desert unicorn-plant locations. Desert unicorn-plant is ranked as CRPR 4, and is not a BLM Sensitive Species (see Section 3.3). The impacts to this species, while adverse, would not warrant further mitigation. Impacts to Emory's crucifixion thorn, if they are not avoided by placement of project components, would be mitigated through implementation of required Mitigation Measure VEG-7 (Mitigate Direct Impacts to Special-Status Plants).

State-Jurisdictional Streambeds. Construction of gen-tie Alternative D would impact state-jurisdictional streambeds, as well as the adjacent riparian vegetation (i.e., Blue Palo Verde–Desert Ironwood Woodland, or Desert Dry Wash Woodland) along portions of its length. Actual acreage of these impacts would depend on the specific placement of poles and other work sites, but is estimated at 39 acres, based on the proportion of Blue Palo Verde–Ironwood Woodlands (Desert Dry Wash Woodland) along the alignment. Native vegetation would be removed or degraded from these streambed and woodland areas. The streambeds would continue to convey water and sediment downslope, but habitat suitability for most native wildlife species would be degraded. These impacts would be offset by implementing Mitigation Measures VEG-1 through MM VEG-6. In addition, implementation of Mitigation Measure VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) would minimize adverse effects of construction practices to jurisdictional streambeds on-site and off-site.

Indirect Effects

Invasive Weeds. In addition to the direct impacts to vegetation, construction of gen-tie Alternative D could have indirect effects to native vegetation, special-status plants, and jurisdictional streambeds off-site, through the introduction or spread of invasive weeds. These impacts are

similar to those described in Section 4.3.7 for Alternative 4, but the effects of weed introductions could be proportionally more severe due to the linear nature of the project component.

Weeds are relatively low in abundance and diversity throughout gen-tie Alternative D alignment, but generally more abundant than the other gen-tie alignments due to the larger area of disused agricultural lands on Alternative D. Construction would be expected to introduce or facilitate the spread of invasive non-native plants, including weeds noted on the site during field surveys (Section 3.3) or weeds new to the area. This potential impact would be minimized by Mitigation Measure VEG-9 (Prepare and Implement an Integrated Weed Management Plan), which would require the project owner to monitor weed occurrence throughout the project area, and to control substantial weed infestations.

Hydrology and Groundwater. Construction of Alternative D could affect off-site vegetation, particularly the Blue Palo Verde–Desert Ironwood Woodlands (Desert Dry Wash Woodland) downstream of work sites, by altering water quality or surface hydrology. If pollutants, silt, or other materials are carried off-site by intermittent stream flows, they could be deposited in downstream washes or could enter the soil or groundwater, where they could adversely affect native woodland vegetation. Implementation of a SWPP (see Section 4.22, Water Resources) and Mitigation Measure VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) during construction would reduce these impacts. Construction of Alternative D would necessitate water use for dust control, but total water usage is expected to be relatively small by comparison with the solar facility site, and no additional impacts to groundwater-dependent vegetation would be expected.

Operation and Maintenance

O&M activities associated with Alternative D could directly affect vegetation, special-status plants, and jurisdictional resources due to long-term habitat alteration by access road maintenance (including roadside vegetation management), periodic gen-tie line inspections or maintenance, and consequent dust and other soil disturbances, and ongoing potential to introduce new weed species or facilitate the spread of existing species.

Direct Effects

Native Vegetation Including Sensitive Natural Communities. Overall impacts of gen-tie line vegetation management during operations would be similar to those described for gen-tie Alternative B (Section 4.3.12). These long-term impacts to vegetation can be reduced through implementation of required Mitigation Measures VEG-1 through MM VEG-6. These measures would limit the initial disturbance areas and avoid off-site habitat degradation; require vegetation management on-site to minimize adverse off-site impacts, and require off-site compensation for habitat lost or degraded throughout the life of the project.

Special-Status Plants. O&M activities associated with the gen-tie line would be similar to those described above for gen-tie Alternative B (Section 4.3.12). Mitigation Measures VEG-5 (Prepare and Implement a Vegetation Resources Management Plan) and MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan) would minimize these impacts throughout the life of the project.

State-Jurisdictional Streambeds. O&M of the gen-tie line would maintain streambeds and associated habitat values throughout the disturbed areas in degraded condition that would no longer provide suitable habitat for most native wildlife species. These impacts would be offset by implementing Mitigation Measures VEG-1 through MM VEG-6. In addition, implementation of Mitigation Measure VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) would minimize adverse effects of O&M practices to jurisdictional streambeds on-site and off-site.

Indirect Effects

In addition to the direct impacts to vegetation, gen-tie operation could have several indirect impacts to native vegetation, special-status plants, and jurisdictional streambeds off-site, including introduction or spread of invasive weeds.

Invasive Weeds. Operation and maintenance of gen-tie Alternative D would be expected to introduce or facilitate the spread of invasive non-native plants as described for gen-tie Alternative B (Section 4.3.12). This potential impact would be minimized by Mitigation Measure VEG-9 (Prepare and Implement an Integrated Weed Management Plan).

Hydrology and Groundwater. Gen-tie Alternative D O&M could affect off-site vegetation, particularly the Blue Palo Verde–Desert Ironwood Woodlands (Desert Dry Wash Woodland) downstream of the alignment, as described for gen-tie Alternative B (Section 4.3.12). Implementation of Mitigation Measure VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) would reduce these impacts.

Decommissioning

Impacts to vegetation resources during decommissioning of gen-tie Alternative D would be similar to the decommissioning summary for Alternative B in Section 4.3.12. When permanent closure is appropriate, a decommissioning plan will be prepared and submitted to the BLM for review and approval. The decommissioning plan will address the gen-tie as well as the solar facility. Impacts to vegetation resources would vary, according to the decommissioning strategy and the intended re-use of the alignment, to be developed prior to actual decommissioning.

Direct Effects

Direct effects of decommissioning gen-tie line Alternative D would be as described for Alternative B. These decommissioning impacts can be reduced through implementation of required Mitigation Measures VEG-1 through MM VEG-6. If the ultimate re-use of the alignment is to return it to natural open space, then the expected recontouring and replanting during decommissioning would have a net benefit to vegetation resources. This potential beneficial impact cannot be evaluated at this time, pending the final re-use decision and the details of the decommissioning plan.

Indirect Effects

The indirect effects of decommissioning to vegetation resources would be similar to the indirect effects described above for project construction. These indirect effects would include the potential for introduction or spread of invasive weeds; and effects to downstream hydrology and associated vegetation. These impacts would be minimized by Mitigation Measures VEG-8

(Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) and MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan).

Mitigation Measures

Required mitigation measures to reduce or minimize impacts of Alternative D to vegetation resources are the same as those required in this Section 4.3.7 for Alternative 4, with the following exception: MM VEG-10 would be deleted because construction, operation, and maintenance of the gen-tie line would not be expected to affect groundwater-dependent vegetation.

Residual Impacts and Unavoidable Adverse Effects

With the implementation of Mitigation Measures VEG-1 through MM VEG-9, residual impacts to vegetation resources would be (1) the net loss of vegetation and habitat on the alignment; (2) the direct effects of dust and other disturbances to adjacent off-site habitat during construction, operation, and decommissioning of the gen-tie line; (3) the net loss of special-status plant occurrences on the alignment; and (4) the net loss of state-jurisdictional streambeds on the alignment. These impacts are described above, under direct impacts of construction.

4.3.15 Alternative E – New Cross-Valley Alignment

Gen-tie Alternative E would be a new ROW alignment across the Chuckwalla Valley (Figure 2-16 in Appendix A). It would not follow any existing or approved utility or road ROW. Alternative E would exit the south side of the solar facility site; follow a broad unnamed wash toward the southeast, cross Highway 177, continue to the east into the Palen-Ford WHMA, and then south, then turn back to the west to reach the Red Bluff Substation.

The gen-tie Alternative E ROW would be 11.4 miles long and 160 feet wide, totaling 221 acres. Construction disturbances within the ROW would be similar to those described above for gen-tie Alternative B (Section 4.3.12), including construction of any new permanent or temporary access roads; transmission structures; splicing/pull sites; and guard structures. Please also refer to the discussion of temporary, long-term, and permanent disturbances in Section 4.3.12. The specific locations and numbers of these project components have not been determined. The materials and equipment staging areas and lay-down areas would be located within the solar facility site, and no additional habitat disturbance would be needed for these project components (see Chapter 2). The Applicant has estimated total disturbance to soils and vegetation for gen-tie Alternative E as 85 acres.

Gen-tie Alternative E is the only Alternative or project component that would affect windblown sand habitat, and possibly special-status plants of that habitat, as described in Section 3.3. Based on the proportions of each vegetation type along the alignment, this analysis estimates that 5 acres of Creosote Bush Scrub (Sonoran Desert Scrub) on bajada and alluvial landforms, 13 acres of Creosote Bush Scrub (Sonoran Desert Scrub) on partially stabilized sandfields, 7 acres of active sand dunes, and 60 acres of Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) would be impacted by permanent or long-term disturbances.

Construction

Construction activities associated with Alternative E could directly affect vegetation, special-status plants, and jurisdictional resources through the long-term and permanent loss and degrada-

tion of native vegetation and its habitat values, loss of special-status plants, and loss or alteration of jurisdictional streambeds and associated habitat values. These effects, and mitigation measures to reduce the severity of these effects, are discussed below.

Direct Effects

Native Vegetation Including Sensitive Natural Communities. Site preparation and project construction on the proposed gen-tie line would consist of removing or crushing vegetation where necessary, such as along the access roads and tower work sites. Project construction would cause substantial degradation to native vegetation and wildlife habitat. Project construction would result in permanent and long-term impacts to 85 acres of vegetation, including 5 acres of Creosote Bush Scrub (Sonoran Desert Scrub) on bajada and alluvial landforms, 13 acres of Creosote Bush Scrub (Sonoran Desert Scrub) on partially stabilized sandfields, 7 acres of active sand dunes, and 60 acres of Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland). Construction traffic and related activities would also cause increased wind erosion and downwind dust. The direct construction impacts to vegetation can be reduced through implementation of required Mitigation Measures VEG-1 through MM VEG-6. Note that, for Alternative E, MM VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat) includes a requirement to compensate for impacts within the Palen-Ford WHMA at a 1:1 ratio (with the exception of sandfield, dune, and desert dry wash woodlands, which require compensation at a higher ratio), and that compensation lands must provide habitat values, including windblown and stabilized sand habitat, comparable to the affected habitat. Vegetation and habitat mapped as Creosote Bush Scrub (Sonoran Desert Scrub) on partially stabilized sand fields and active sand dunes, would be compensated at the 5:1 ratio and Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) would be compensated at the 3:1 ratio.

Special-Status Plants. One Emory's crucifixion thorn was located near the alignment and 65 desert unicorn-plant occurrences were documented on or near the alignment of gen-tie Alternative E during fall field surveys for the DHSP (Section 3.3). Due to the natural history of desert unicorn-plant (perennial herb; sprouts above-ground every few years in response to warm season rains), it is likely that additional, undocumented locations exist along the alignment. Spring surveys of the alignment were conducted during spring 2012. Two additional special-status plants were documented on the Alternative E alignment: Harwood's woollystar and ribbed cryptantha (see Section 3.3).

Depending on the placement of poles and other work sites, construction of Alternative E could remove known special-status plant occurrences, or occurrences not yet documented. Harwood's woollystar is ranked as CRPR 1B; ribbed cryptantha and desert unicorn-plant are ranked as CRPR 4. Of these species, only Harwood's woollystar is a BLM Sensitive Species (see Section 3.3). Impacts to these species, excluding desert unicorn-plant, would either be avoided by placement of project components, or would be mitigated through implementation of Mitigation Measure VEG-7 (Mitigate Direct Impacts to Special-Status Plants), described in Section 4.3.7, above. Note that, for Alternative E, MM VEG-7 includes a requirement to evaluate and mitigate impacts to special-status aeolian sand plant species, which would not be necessary for the other gen-tie alternatives evaluated here.

State-Jurisdictional Streambeds. Construction of gen-tie Alternative E would impact state-jurisdictional streambeds, as well as the adjacent riparian vegetation (i.e., Blue Palo Verde–Desert Ironwood Woodlands, or Desert Dry Wash Woodland) along portions of its length. Actual acreage of these impacts would depend on the specific placement of poles and other work sites, but is estimated at 60 acres, based on the proportion of Blue Palo Verde–Ironwood Woodlands (Desert Dry Wash Woodland) along the alignment. Native vegetation would be removed or degraded from these streambed and woodland areas. The streambeds would continue to convey water and sediment downslope, but habitat suitability for most native wildlife species would be degraded. These impacts would be offset by implementing Mitigation Measures VEG-1 through MM VEG-6. In addition, implementation of Mitigation Measure VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) would minimize adverse effects of construction practices to jurisdictional streambeds on-site and off-site.

Indirect Effects

Sand Transport. The gen-tie line structures and access road would cause small sand accumulations on the leeward sides of structures and on road margins. These would similar to the accumulations at the bases of shrubs (see Section 3.3). The structures and road margins would not be wide enough or tall enough to meaningfully interrupt aeolian sand transport in the local dune system or downwind to the Palen Dunes.

Invasive Weeds. In addition to the direct impacts to vegetation, construction of gen-tie Alternative E could have indirect effects to native vegetation, special-status plants, and jurisdictional streambeds off-site, through the introduction or spread of invasive weeds. These impacts are similar to those described in Section 4.3.7 for Alternative 4, but the effects of weed introductions could be proportionally more severe due to the linear nature of this project component.

Weeds are relatively low in abundance and diversity throughout gen-tie Alternative E alignment. Construction would be expected to introduce or facilitate the spread of invasive non-native plants, including weeds noted on the site during field surveys (Section 3.3) or weeds new to the area. This potential impact would be minimized by Mitigation Measure VEG-9 (Prepare and Implement an Integrated Weed Management Plan), which would require the project owner to monitor weed occurrence throughout the project area, and to control substantial weed infestations.

Hydrology and Groundwater. Construction of Alternative E could affect off-site vegetation, particularly the Blue Palo Verde–Desert Ironwood Woodlands (Desert Dry Wash Woodland) downstream of work sites, by altering water quality or surface hydrology. If pollutants, silt, or other materials are carried off-site by intermittent stream flows, they could be deposited in downstream washes or could enter the soil or groundwater, where they could adversely affect native woodland vegetation. Implementation of a SWPP (see Section 4.22, Water Resources) and Mitigation Measure VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) during construction would reduce these impacts. Construction of Alternative E would necessitate water use for dust control, but total water usage is expected to be relatively small by comparison with the solar facility site, and no additional impacts to groundwater-dependent vegetation would be expected.

Operation and Maintenance

Operations and maintenance activities associated with Alternative E could directly affect vegetation, special-status plants, and jurisdictional resources due to long-term habitat alteration by access road maintenance (including roadside vegetation management), periodic gen-tie line inspections or maintenance, and consequent dust and other soil disturbances, and ongoing potential to introduce new weed species or facilitate the spread of existing species.

Direct Effects

Native Vegetation Including Sensitive Natural Communities. Overall impacts of gen-tie line vegetation management during operations would be similar to those described for gen-tie Alternative B (Section 4.3.12). These long-term impacts to vegetation can be reduced through implementation of required Mitigation Measures VEG-1 through MM VEG-6. These measures would limit the initial disturbance areas and avoid off-site habitat degradation; require vegetation management on-site to minimize adverse off-site impacts, and require off-site compensation for habitat lost or degraded throughout the life of the project.

Special-Status Plants. Gen-tie line O&M activities would be similar to those described above for gen-tie Alternative B (Section 4.3.12). Mitigation Measures VEG-5 (Prepare and Implement a Vegetation Resources Management Plan) and MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan) would minimize these impacts throughout the life of the project.

State-Jurisdictional Streambeds. O&M of the gen-tie line would maintain streambeds and associated habitat values throughout the disturbed areas in degraded condition that would no longer provide suitable habitat for most native wildlife species. These impacts would be offset by implementing Mitigation Measures VEG-1 through MM VEG-6. In addition, implementation of Mitigation Measure VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) would minimize adverse effects of O&M activities to jurisdictional streambeds on-site and off-site.

Indirect Effects

In addition to the direct impacts to vegetation, gen-tie operation could have several indirect impacts to native vegetation, special-status plants, and jurisdictional streambeds off-site, including introduction or spread of invasive weeds.

Invasive Weeds. O&M of gen-tie Alternative E would be expected to introduce or facilitate the spread of invasive non-native plants as described for gen-tie Alternative B (Section 4.3.12). This potential impact would be minimized by Mitigation Measure VEG-9 (Prepare and Implement an Integrated Weed Management Plan).

Hydrology and Groundwater. O&M of gen-tie Alternative E could affect off-site vegetation, particularly the Blue Palo Verde–Desert Ironwood Woodlands (Desert Dry Wash Woodland) downstream of the alignment, as described for gen-tie Alternative B (Section 4.3.12). Implementation of Mitigation Measure VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) would reduce these impacts.

Decommissioning

Impacts to vegetation resources during decommissioning of gen-tie Alternative E would be similar to the decommissioning summary for Alternative B in Section 4.3.12. When permanent closure is appropriate, a decommissioning plan will be prepared and submitted to the BLM for review and approval. The decommissioning plan will address the gen-tie as well as the solar facility. Impacts to vegetation resources would vary, according to the decommissioning strategy and the intended re-use of the alignment, to be developed prior to actual decommissioning.

Direct Effects

Direct effects of decommissioning gen-tie line Alternative E would be as described for Alternative B. These decommissioning impacts can be reduced through implementation of required Mitigation Measures VEG-1 through MM VEG-6. If the ultimate re-use of the alignment is to return it to natural open space, then the expected recontouring and replanting during decommissioning would have a net benefit to vegetation resources. This potential beneficial impact cannot be evaluated at this time, pending the final re-use decision and the details of the decommissioning plan.

Indirect Effects

The indirect effects of decommissioning to vegetation resources would be similar to the indirect effects described above for project construction. These indirect effects would include the potential for introduction or spread of invasive weeds; and effects to downstream hydrology and associated vegetation. These impacts would be minimized by Mitigation Measures VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) and MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan).

Mitigation Measures

Required mitigation measures to reduce or minimize impacts of Alternative E to vegetation resources are the same as those required in this Section 4.3.7 for Alternative 4, with the following exception: MM VEG-10 would not apply because construction, operation, and decommissioning of the gen-tie line would not be expected to affect groundwater-dependent vegetation. Note that, for Alternative E, MM VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat) includes a requirement to compensate for impacts within the Palen-Ford WHMA at a 1:1 ratio, and that compensation lands must provide habitat values, including windblown and stabilized sand habitat, comparable to the affected habitat. Also, for Alternative E, MM VEG-7 includes a requirement to evaluate and mitigate impacts to special-status aeolian sand plant species, which would not be necessary for the other gen-tie alternatives evaluated here.

Residual Impacts and Unavoidable Adverse Effects

With the implementation of Mitigation Measures VEG-1 through MM VEG-9, residual impacts to vegetation resources would be (1) the net loss of vegetation and habitat on the alignment; (2) the direct effects of dust and other disturbances to adjacent off-site habitat during construction, operation, and decommissioning of the gen-tie line; (3) the net loss of special-status plant

occurrences on the alignment; and (4) the net loss of state-jurisdictional streambeds on the alignment. These impacts are described above, under direct impacts of construction.

4.3.16 Cumulative Effects

Geographic Scope

The "geographic scope" of the analysis of cumulative impacts to biological resources refers to the area within which cumulative impacts are likely to occur. For the proposed project, the majority of this cumulative effects analysis makes a broad, regional evaluation of the impacts of existing and reasonably foreseeable future projects that threaten plant communities within the context or geographic scope of the NECO Plan. The NECO planning area was selected as the geographical scope of the cumulative impacts analysis on vegetation communities and on special-status plant species because it is the California portion of the Sonoran Desert ecosystem. The NECO planning area, which is located in the southeastern CDCA, comprises 5.5 million acres of private, federal, and State land. The majority of the planning area land (3,823,194 acres, or 69 percent) is public land managed by BLM (BLM and CDFG 2002). It hosts 60 special-status plant and animal species.

The project is also located within the Palen Watershed which is a subset of the NECO planning area. For the cumulative impact analysis on sensitive vegetation communities (i.e., desert dry wash woodland) and jurisdictional resources, the Palen Watershed was selected as the geographical scope for this cumulative impacts analysis, given potential impacts at the watershed scale.

Project impacts related to biological resources could occur during the construction phase of the project, the planned 30-year operational life of the DHSP, and the decommissioning phase. This analysis considers these timeframes.

Table 4.3-5. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Biological Resources – Vegetation	NECO Planning Area	Loss and fragmentation of vegetation and habitat resources, impacts to special status species, contribution to groundwater depletion, and contribution to the spread of nonnative and invasive weeds, channel diversions of desert washes,	All projects within the NECO planning area listed in Table 4.1-1 and 4.1-2 Projects closest to the DHSP site are primarily renewable energy and infrastructure projects, and include • Desert Sunlight Solar Farm Project • SCE Red Bluff Substation • Eagle Mountain Wind Project • Devers-Palo Verde No. 2 Transmission Line Project • Desert Southwest Transmission Line • Desert Center 50 Solar Project • Silverado Project • Palen Solar Energy Project.

Regional Overview. Over the past two hundred years, California's deserts have been subject to major human-induced changes that have threatened native plant and animal communities by habitat loss, fragmentation, and degradation. Some of the most conspicuous threats are those land uses and activities that have resulted in large-scale habitat loss due to urbanization, agricultural uses, landfills, military facilities, mining, grazing, off-highway vehicles and other recreational

uses, as well as linear features that fragment and degrade habitats such as roads, aqueducts, and railroads, and (Brooks and Lair 2005, Lovich and Bainbridge 1999, Jennings 1997). In addition, these development pressures have facilitated the introduction of non-native plant species and increases in predators such as ravens, which contribute to population declines and range contractions for many special-status plant and animal species (Boarman 2002, Lovich and Bainbridge 1999).

The deserts of eastern Riverside County comprise 40 percent of the County's land area but less than one percent of its human population. Outside of the small urban-agricultural center of Blythe, near the Colorado River and Arizona border, there are only a few scattered, small residential and agricultural areas between Indio (to the west) and Blythe, and most of the lands are administered by BLM.

In the areas identified for renewable energy development in eastern Riverside County, some of the many sensitive vegetation resources at risk include desert washes and desert dry wash woodland; native, slow-growing vegetation; and special-status plants. Combined with the effects of historical grazing and military training, and fragmentation of habitat from highway and aqueduct construction, the proposed wind and solar energy projects have the potential to further reduce and degrade native plant populations.

Existing Cumulative Conditions. The NECO planning area is located mostly within the Colorado Desert region of the Sonoran Desert, which is composed of a diverse range of vegetation communities typical of those found in the Sonoran Desert. These habitat types include desert scrub as well as sensitive desert wash and sand dune habitats. The geographic scope of the area of cumulative effects also includes several dry lake beds, numerous drainages, and areas relatively devoid of native vegetation, including developed areas, paved roads, highways, access roads, active and abandoned agricultural fields, active and abandoned rail lines, the Colorado River Aqueduct, and other disturbed areas. Invasive weed species have been identified throughout the cumulative impacts area. The area supports habitat for, and populations of, several special-status plant species, as described in Section 3.3.

Methodology

The following steps were used to develop the cumulative effects analysis for biological resources (both vegetation and wildlife):

1. Biological resources to be considered in the analysis were identified based on a review of the direct and indirect impacts of the proposed project and alternatives that might contribute to a cumulative impact (see above and Section 4.4: Biological Resources – Wildlife);
2. The geographic scope and timeframe within which the biological resource-related impacts of past, present, and reasonably foreseeable future actions could combine with impacts of the proposed project and alternatives for each resource was determined;
3. The current status and condition, and historical context for each resource was described;
4. Other projects in the cumulative scenario were identified that could affect each resource;
5. Cumulative effects to biological resources were analyzed;
6. Results were reported; and

7. The need for mitigation was assessed.

For each cumulative effect, the following factors were considered in making conclusions about the severity of an effect:

1. The status or condition of the resource as a result of past, present, and reasonably foreseeable impacts;
2. The contribution of the project to the overall cumulative impact to the resource;
3. The project's mitigated effect, when added to the effects of these planned future projects; and
4. Impact avoidance and minimization: any project design changes that were made or additional opportunities that could be taken to avoid or minimize potential impacts in light of cumulative impact concerns.

Analytical Tools and Study Limitations

This cumulative effects analysis employed a combination of quantitative and qualitative analyses: a Geographic Information System (GIS)-based quantitative analysis for assessing the direct cumulative effects to habitat loss, and a qualitative analysis of the cumulatively considerable indirect effects, based on consultations with agency biologists and regional experts, as well as a literature review of the threats to species and their habitats.

The GIS-based analysis of direct habitat loss was used for this cumulative effects analysis to:

1. Identify the overlap between existing and future projects and various biological data layers (e.g., landforms, soils, species occurrences, hydrographic data, vegetation mapping, wildlife habitat models, ownership and management layers); and
2. Create tables to summarize the direct impacts to these resources from existing and anticipated future projects, and the project's contribution to those effects.

Information on the data sets used, the sources of the data, and any limitations of the data are provided in each biological resource section.

The large renewable projects proposed on BLM-administered and private land used in the cumulative analysis for Biological Resources (Table 4.1-2, *Cumulative Projects Within the Geographic Scope of Cumulative Analysis for Each Resource Area)* represent the projects that had applications to the BLM or the California Energy Commission as of October, 2011. As stated in the Cumulative Scenario (Section 4.1.4), not all of the projects shown in the table will complete the environmental review, and not all projects will be funded and constructed. At the same time, new applications may be submitted in the near future that will affect biological resources. It is likely that new projects will be proposed in the near future that are not reflected in this analysis.

GIS is a widely used and effective tool for analyzing large amounts of spatial data, for documenting and quantifying assumptions about direct habitat loss, and the value of the habitat (where habitat models are available). However, the indirect impacts of projects are not easily captured in GIS and thus were only addressed qualitatively. The following indirect effects were considered in assessing the significance of cumulative impacts to all biological resources: habitat fragmentation and its effects on population viability; increased vehicle-related mortality; disturbance from noise, lighting, and increased human activity; increase in predators such as ravens;

spread of invasive non-native plants; downwind effects of facilities and wind fencing on sand transport corridors; bird collisions and electrocutions; climate change and its accompanying increased risk of drought, fire and exotics; indirect impacts to wildlife movement and connectivity; the downstream effects of channel diversions on fluvial sediment transport and riparian vegetation; and the long-term effects of groundwater pumping on groundwater-dependent vegetation. This qualitative analysis relied in part on the professional opinions of agency biologists and regional experts, and a review of literature and databases. Indirect effects listed above that are specific to wildlife resources are detailed in Section 4.4 (Biological Resources – Wildlife).

Finally, the GIS-based analysis requires the use of datasets that encompass the entire geographic scope of the analysis; the project-specific survey data could not be compared against data for the region that was derived from different methodologies and at different scales. Consequently, the GIS analysis of impacts to plant communities, landforms, and habitats is based on region-wide datasets for those resources (primarily NECO datasets), and not on project survey data. Acreages listed in the analysis below, for example, Desert Dry Wash Woodland or Sonoran Desert Scrub, will not match the project-specific survey results. Notwithstanding the challenges presented by comparing region-wide and project-specific datasets, the GIS-based datasets for vegetation and landforms provide a powerful tool for conducting region-wide analyses.

Past, Present, and Reasonably Foreseeable Future Projects

With the exception of the adjacent Desert Sunlight Solar Farm Project to the north (under construction), development is limited in the general area around the proposed project and alternatives. Tables 4.1-1 and 4.1-2 in Section 4.1.4 identify 51 existing and proposed projects along the I-10 corridor in the Chuckwalla Valley and the BLM Palm Springs Field Office region, within 50 miles of the proposed project and alternatives. Existing development near the project site includes the Colorado River Aqueduct, the Eagle Mountain Pumping Plant, the Kaiser Mine (now inactive), agricultural lands (including active and disused lands), and the communities of Desert Center and Lake Tamarisk. The foreseeable projects closest to the DHSP are primarily renewable energy and infrastructure projects, and include the Desert Sunlight Solar Farm Project (adjacent to the northern boundary of the project site), which is under construction; the approved SCE Red Bluff Substation; the proposed Eagle Mountain Wind Project; the Devers-Palo Verde No. 2 Transmission Line Project, under construction; the approved Desert Southwest Transmission Line; the proposed Desert Center 50 Solar Project; the proposed Silverado Project; and the approved Palen Solar Energy Project. The I-10 freeway runs in an east-west direction approximately 5 miles south of the solar facility site. Other existing land uses in the Chuckwalla Valley and surrounding area include various transmission lines, active and fallow agricultural fields, and recreational lands (including JTNP).

Land use in the cumulative analysis area has been historically altered by human activities, resulting in conversion of undeveloped land and habitat loss, fragmentation, and degradation. Reasonably foreseeable future projects that could impact biological resources in the cumulative impacts area characterize overall development trends in the Chuckwalla Valley as well as in the larger NECO planning area. Ongoing development in the area is dominated by renewable energy development. In addition to large-scale land conversion to industrial uses at a project site, major renewable projects require extensive access roads and new transmission lines to tie into the existing electrical grid system.

In addition to one-time construction impacts, the project would have ongoing operational impacts on biological resources. Therefore, all projects that might contribute impacts over time in the cumulative effects analysis area are considered for this analysis. These projects include non-renewable energy, transmission lines, wind power, and solar power projects as well as commercial and residential developments, reconstruction projects, a pumped storage project, an auto racetrack, a landfill, and a communication project. Section 4.1.4 describes all projects considered in this cumulative analysis.

The Office of Energy Efficiency and Renewable Energy (EERE), Department of Energy (DOE), and the BLM published a Programmatic Environmental Impact Statement (PEIS) in July 2012 to evaluate utility-scale solar energy development, to develop and implement Agency-specific programs or guidance that would establish environmental policies and mitigation strategies for solar energy projects, and to amend relevant BLM land use plans with the consideration of establishing a new BLM Solar Energy Program (DOE and BLM 2012). In the Final PEIS, the BLM has identified 17 proposed Solar Energy Zones (SEZs) in 6 states, including 2 in California. An SEZ is defined as an area with few impediments to utility-scale production of solar energy where BLM would prioritize solar energy and associated transmission infrastructure development. Approximately 285,000 acres have been identified as proposed SEZs in the Final PEIS. The DHSP lies mostly within the proposed Riverside East SEZ, which encompasses 147,910 acres between JTNP and the California-Arizona border (DOE and BLM 2012).

The DOE and BLM estimate that a total of 185,049 acres of land will be developed in California for solar power by 2030. This includes 138,789 acres on BLM lands and 46,260 acres on non-BLM lands (DOE and BLM 2012).

Cumulative Effects Analysis

There would be no cumulative vegetation impacts under the No Action or No Project Alternatives (Alternatives 1, 3, or A) because there would be no ROW grant for development of the solar farm area and associated facilities, including the gen-tie line. Alternative 2: No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development) could contribute to cumulative vegetation impacts because the CDCA Plan could be amended to allow solar development of the site. However, any future proposals for use of the site would be subject to separate environmental analysis and since such future proposals are unknown at this date, any impacts are also unknown. The remainder of this section addresses the Action Alternatives: Alternatives 4 through 7 and gen-tie alignment Alternatives C, D, and E.

Alternative B would not contribute to cumulative vegetation effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Native Vegetation Including Sensitive Natural Communities

The geographic scope of the analysis of cumulative effects on plant communities and general wildlife habitat encompasses the NECO planning area. The analysis of direct impacts conducted in GIS uses the NECO plant communities dataset to map and quantify cumulative effects on native vegetation, including sensitive natural communities (Table 4.3-6). The NECO plant communities dataset is based on the 1996 California Gap Analysis Project, a project of the

Biogeography lab at UC Santa Barbara. The accuracy and resolution of the GAP mapping was improved for the NECO plant communities dataset (BLM and CDFG 2002, Appendix H) using aerial photos and extensive ground-truthing, but should not be viewed as a substitute for site-specific habitat mapping. Table 4.3-6 quantifies the cumulative effects to plant communities. It should be noted that the analysis presented here and quantified in Table 4.3-6 includes only those foreseeable future projects for which GIS-based spatial data was available at the time of the analysis (October 2011). Foreseeable future projects included in this analysis are primarily renewable energy projects that had submitted a Plan of Development (POD) to the BLM at the time of the analysis.

Threats to plant communities (i.e., vegetation and habitat) in the NECO planning area include habitat loss and fragmentation due to development, fire, off-highway vehicle activity, cattle and sheep grazing, overdrawn groundwater, and the spread of invasive plant species (BLM and CDFG 2002). Aeolian sand habitats in some areas are threatened by isolation from upwind sand sources, caused by land use changes and linear barriers (e.g., athel windrows). Current and foreseeable projects in the planning area, including renewable energy developments, contribute cumulatively to impacts to vegetation and habitat through loss and fragmentation of these resources, contribution to groundwater depletion, and contribution to the spread of nonnative and invasive weeds.

Table 4.3-6. Cumulative Impacts to Native Vegetation Communities

Vegetation Community[1]	Total Acres in NECO Planning Area[1]	Acres of Impacts from Existing Projects[2]	Acres of Impacts from Foreseeable Future Projects[3]	Contribution of DHSP Action Alternatives to Future Cumulative Impacts
Mojave – Creosote Bush Scrub	805,832	6,233	9,737	0 acres
Sonoran – Creosote Bush Scrub	3,829,999	22,815	149,736	Alt 4: 661 acres Alt 5: 624 acres Alt 6: 624 acres Alt 7: 624 acres Alt C: 47 acres Alt D: 36 acres Alt E: 53 acres
Desert Dry Wash Woodland	682,027	8,457	35,843	Alt 4: 547 acres Alt 5: 537 acres Alt 6: 420 acres Alt 7: 420 acres Alt C: 39 acres Alt D: 17 acres Alt E: 31 acres
Playa/Dry Lake	88,110	961	6,078	0 acres
Sand Dunes	62,140	1,465	128	0 acres
Chenopod Scrub	2,113	480	0	0 acres
Agriculture, Developed	94,187	93,066	1,506	Alt 4: 0 acres Alt 5: 0 acres Alt 6: 0 acres Alt 7: 0 acres Alt C: 0 acres Alt D: 26 acres Alt E: 0 acres
Pinyon-Juniper Woodland	1,928	0	0	0 acres

Table 4.3-6. Cumulative Impacts to Native Vegetation Communities

Vegetation Community[1]	Total Acres in NECO Planning Area[1]	Acres of Impacts from Existing Projects[2]	Acres of Impacts from Foreseeable Future Projects[3]	Contribution of DHSP Action Alternatives to Future Cumulative Impacts
Total	**5,566,336**	**133,477**	**203,028**	**Alt 4: 1,208 acres** **Alt 5: 1,161 acres** **Alt 6: 1,044 acres** **Alt 7: 1,044 acres** **Alt C: 86 acres** **Alt D: 79 acres** **Alt E: 84 acres**

1 - Based on the BLM NECO Plant Communities dataset conducted by the Biogeography Lab at the University of California, Santa Barbara and coordinated through the USGS Biological Resources Division UC Santa Barbara GAP Analysis (1996), updated during the NECO planning effort (see Appendix H of the NECO Plan/EIS [BLM and CDFG 2002]).
2 - Includes only those existing projects for which GIS-based spatial data was available at the time of the analysis.
3 - Includes only those foreseeable future projects for which GIS-based spatial data was available at the time of the analysis. Foreseeable future projects included in this analysis are primarily renewable energy projects that had submitted a Plan of Development (POD) to the BLM at the time of the analysis.
Source: BLM 2011a, 2011b.

Substantial adverse cumulative effects to plant communities from existing and proposed future projects (not including the proposed project) are seen in many vegetation types, particularly Sonoran Creosote Bush Scrub (4.5%), Desert Dry Wash Woodland (6.5%), and Playa/Dry Lake (8.0%). These figures reflect only direct impacts, and do not address the indirect effects to remaining habitat from fragmentation, alteration of the surface drainage patterns (which support many common and rare species), and an increase in the risk of fire and the introduction and spread of noxious weeds. Climate change is expected to exacerbate the effects of drought and noxious weed spread. The cumulative effects of groundwater pumping by all projects are expected to have adverse effects on groundwater-dependent vegetation in some portions of the Chuckwalla Valley.

The solar facility site is mapped as Sonoran Creosote Bush Scrub (661 acres) and Desert Dry Wash Woodland (547 acres) in the NECO plant communities dataset. A total of 3,829,999 acres of Sonoran Creosote Bush Scrub and 682,027 acres of Desert Dry Wash Woodland are mapped within the NECO planning area. Existing and foreseeable projects would impact 172,551 acres of Sonoran Creosote Bush Scrub and 44,300 acres of Desert Dry Wash Woodland. The proposed project or its alternatives would contribute at least incrementally to the cumulative loss of Sonoran Creosote Bush Scrub and Desert Dry Wash Woodland. Sonoran Creosote Bush Scrub is a common and widespread community in the southeastern deserts of California; however, this broad designation does not reflect the importance of large, intact blocks of habitat to wildlife movement, or to foraging and breeding habitat for wildlife, including state and federally listed threatened and endangered plant and animal species (see Section 4.4.16 for a detailed discussion of cumulative impacts to wildlife). The NECO mapping of plant communities also does not reflect the many uncommon and even rare plant assemblages within creosote scrub that have been documented and are monitored by the CNDDB (BLM 2011b). None of the alternatives analyzed above would interrupt aeolian sand transport in the local dune system or downwind to the Palen Dunes.

Implementation of Mitigation Measure VEG-6 requires acquisition and protection of Sonoran Creosote Bush Scrub and Desert Dry Wash Woodland. For compensation of desert tortoise habitat, it requires that the compensation lands will be located in the Colorado Desert Tortoise

Recovery Unit. Compensation would considerably reduce the contribution of the proposed project or its alternatives to the cumulative loss of these habitats. Although acquisition does not address the net loss of habitat in the immediate future (a temporal net loss of habitat), it is expected to prevent future losses of habitat by placing a permanent conservation easement and deed restrictions on private lands that could otherwise be converted for urban, agricultural, or energy development.

Mitigation Measure VEG-9 for weed management would offset the contribution of the proposed project or its alternatives to the indirect cumulative effects to the spread of invasive non-native plants and their effects on plants, wildlife, and fire risk. MM VEG-10 would require monitoring of groundwater-dependent vegetation (and remedial action in the event of adverse effects), and would considerably reduce the contribution of the proposed project or its alternatives to this effect.

Seemingly minor impacts can be adverse if they affect an extremely rare or limited resource, and the cumulative impact may be substantial. Desert Dry Wash Woodland is a sensitive natural community recognized under many laws, ordinances, regulations, standards, and area plans. Because it has a limited distribution (relative to common and widespread communities such as Sonoran Creosote Bush Scrub) and carries an ecological importance that is disproportionate to its limited extent, this would be a substantial cumulative effect, particularly in light of the contribution of the proposed project or its alternatives to cumulative effects to desert washes in the Palen watershed. The contribution of the proposed project or its alternatives to the cumulative loss of Desert Dry Wash Woodland would be reduced considerably by the implementation of MM VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat) and MM VEG-10 (Prepare and Implement a Desert Dry Wash Woodland Monitoring and Reporting Plan.). Again, although acquisition does not address the net loss of habitat in the immediate future (a temporal net loss of habitat), it is expected to prevent future losses of habitat by placing a permanent conservation easement and deed restrictions on private lands that could otherwise be converted for urban, agricultural, or energy development. Effects to sensitive Desert Dry Wash Woodland could be further minimized by adopting Alternative 6 (Reduced Footprint Solar Project) or Alternative 7 (High-Profile Reduced Footprint Solar Project), which would avoid 127 acres of this habitat in the southwestern parcel.

State-Jurisdictional Streambeds

As identified above, the geographic scope for the analysis of cumulative impacts to desert washes and streambeds (including intermittent and ephemeral washes) included the Palen watershed. Most of the desert washes that pass through the project site are distributary channels of the alluvial fan—or bajada—that drains the Iron and Coxcomb Mountains to the west, north, and northeast. Cumulative effects were analyzed within the context of the watershed because this relatively small watershed will be affected by several proposed solar projects in addition to the proposed project or its alternatives: the Desert Sunlight Solar Farm Project, the Silverado Project, the Palen Solar Power Project, and the Desert Center 50 Solar Project (see Figures 4.1-1 and 4.4-2 in Appendix A). Existing impacts to desert washes in the Palen watershed include urban and agricultural lands around Desert Center, segments of the I-10 and Highway 177 corridors, the closed Kaiser Mine, the Colorado River Aqueduct, and various transmission corridors (gas and electric).

Table 4.3-7 summarizes the direct loss of state-jurisdictional resources in the Palen watershed that would result from anticipated future projects. The metrics used are miles of desert washes (as delineated within the USGS National Hydrographic Dataset (2010) and CalWater Version 2.2.1 (California Interagency Watershed Mapping Committee 1999) as well as acres of Desert Dry Wash Woodland (based on the BLM NECO Plant Communities dataset conducted by the Biogeography Lab at the University of California, Santa Barbara and coordinated through the USGS Biological Resources Division UC Santa Barbara GAP Analysis (1996), updated during the NECO planning effort (see Appendix H of the NECO Plan/EIS [BLM and CDFG 2002]). The contribution of the proposed project and alternatives to cumulative effects from future projects is provided (1) as the sum of all drainages within the project site boundaries, and expressed as a percentage of all future projects effects, and (2) as the acreage of direct impacts to Desert Dry Wash Woodland.

Table 4.3-7. Cumulative Impacts to State Jurisdictional Resources within the Palen Watershed

Resource	Amount in Palen Watershed[1,2]	Impacts from Existing Projects[3]	Impacts from Foreseeable Future Projects[4]	Contribution of DHSP Action Alternatives to Future Cumulative Impacts
Desert Washes	1,496 miles	34 miles	56 miles	Alt 4: 9 miles Alt 5: 8.8 miles Alt 6: 7 miles Alt 7: 7 miles Alt C: 0.9 miles Alt D: 0.7 miles Alt E: 1.3 miles
Desert Dry Wash Woodland	148,856 acres	4,566 acres	2,944 acres	Alt 4: 547 acres Alt 5: 537 acres Alt 6: 420 acres Alt 7: 420 acres Alt C: 39 acres Alt D: 17 acres Alt E: 31 acres

1 - Based on the USGS National Hydrographic Dataset (2010).
2 - Based on the BLM NECO Plant Communities dataset conducted by the Biogeography Lab at the University of California, Santa Barbara and coordinated through the USGS Biological Resources Division UC Santa Barbara GAP Analysis (1996), updated during the NECO planning effort (see Appendix H of the NECO Plan/EIS [BLM and CDFG 2002])
3 - Includes only those existing projects for which GIS-based spatial data was available at the time of the analysis.
4 - Includes only those foreseeable future projects for which GIS-based spatial data was available at the time of the analysis. Foreseeable future projects included in this analysis are primarily renewable energy projects that had submitted a Plan of Development (POD) to the BLM at the time of the analysis.

The cumulative effects of channel diversions from all projects within the Palen watershed (56 miles of desert washes) are substantial and the incremental effects of the proposed project itself would be substantial (15 percent of total impacts from foreseeable future projects, or 9.9 miles of desert washes for Alternatives 4 plus B). The direct effects of all projects are compounded by the fact that they also cause impairment of hydrologic, geochemical, geomorphic, and habitat function and values of the remaining reaches downstream of the impact.

Indirect effects of all future projects that cannot be adequately addressed with this GIS analysis but are expected to be cumulatively considerable and include: impacts to water quality and sediment transport from the numerous channel diversions, culverts and road crossings, and fragmentation of the habitat and the corresponding loss of habitat function and values, including wildlife movement (discussed in detail in Section 4.4.16).

Implementation of the mitigation measures proposed above would reduce but not eliminate the contribution of the proposed project or its alternatives to cumulative effects, including MM VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat); MM VEG-10 (Prepare and Implement a Desert Dry Wash Woodland Monitoring and Reporting Plan); and MM VEG-8 (Implement Best Management Practices to minimize impacts to jurisdictional areas).

Special-Status Plants

A variety of special-status plant species have ranges that extend through the Mojave and Colorado Deserts of the NECO planning area, and several are endemic to the planning area. Five (5) special-status plants occur on the solar facility site and gen-tie alternative alignments: Emory's crucifixion thorn (CRPR 2.3), Harwood's woollystar (CRPR 1B.2), Utah vine milkweed (CRPR 4.2), ribbed cryptantha (CRPR 4.3), and desert unicorn-plant (CRPR 3.3Threats to special-status plants in the California deserts include habitat loss and fragmentation due to development, off-highway vehicle activity, cattle and sheep grazing, overdrawn groundwater, and the spread of invasive plant species (Western et al. 2010). Current and foreseeable renewable energy developments in the Colorado Desert contribute to impacts to special-status plants through loss and fragmentation of habitat to development, contributing to depletion of groundwater supplies, and contributing to the spread of nonnative and invasive weeds.

The proposed project or its alternatives are not anticipated to substantially impact any populations of special-status species or cacti, although a number of individuals would be impacted under Alternatives 4 5, 6, 7, B, C, D and E. However, the development of numerous large-scale projects, such other solar generation facilities, would result in a substantial permanent conversion of desert habitat to industrial/commercial uses, which would remove habitat for many special-status plant species and cacti. Therefore, the loss of this habitat is anticipated to result in substantial adverse cumulative impacts on populations of many special-status plant species and cacti and the incremental effect of the proposed project or its alternatives would be substantial.

Mitigation Measure VEG-7 (Mitigate direct impacts to special-status plants) would reduce the incremental contribution of the proposed project or its alternatives to cumulative impacts to Emory's crucifixion thorn, Harwood's woollystar and other CRPR 1 or 2 special-status plants by requiring the project owner to either (1) salvage individual plants from the site prior to construction; (2) introduce greenhouse-raised plants into suitable off-site habitat; or (3) to provide compensation lands with extant special-status plant occurrences. The project's effects on the three CRPR 4 species, while adverse, would not warrant further mitigation due to the higher regional abundance and the very low density of these species on site. Therefore, with implementation of these measures, the project's incremental direct and indirect contribution to cumulative effects to special-status plants would be reduced.

4.3.17 CEQA Considerations

This section is included in this EIS and CDCA Plan Amendment for future use by CEQA Lead and Responsible agencies and is not required under NEPA.

CEQA Significance Criteria

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. They are used to determine whether the proposed project or alterna-

tives would result in significant impacts under CEQA related to biological resources. The proposed project or alternatives would result in a significant impact related to biological resources if they would:

VEG-1 Have a substantial adverse effect, either directly or through habitat modifications, on any plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS;

VEG-2 Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or USFWS;

VEG-3 Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

VEG-4 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

VEG-5 Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

CEQA Significance Determination

Alternative 1. Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, the proposed solar energy project would not be constructed and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended. It is expected that the site would remain in its existing condition, with no new structures or facilities constructed or operated and no ground disturbance. No significant impacts to vegetation resources would result from Alternative 1. Alternative 1 would not contribute to any significant cumulative impact, as defined in CEQA.

Alternative 2. Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the proposed would not be constructed and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. Any future project would be reviewed under a separate NEPA analysis. No significant impacts to vegetation resources would result from the DHSP. Alternative 2 would not contribute to any significant cumulative impact, as defined in CEQA.

Alternative 3. Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the proposed would not be constructed and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. Any future project would be reviewed under a separate NEPA analysis. No significant impacts to vegetation resources would result from the DHSP. Alternative 3 would not contribute to any significant cumulative impact, as defined in CEQA.

Alternative 4. Under Alternative 4, the direct and indirect impacts of project construction, operation, and decommissioning, to vegetation resources, including native plant communities, special-status plant taxa, and state-jurisdictional streambeds, as described in Section 4.3.7, would be significant under criteria VEG-1 (impacts to special-status plants) and VEG-2 (impacts to sensitive natural communities), above.

With implementation of Mitigation Measures VEG-1 through MM VEG-10, these impacts to vegetation resources would be mitigated to less than significant levels under CEQA by minimizing vegetation impacts to the extent practicable; mitigating direct impacts to special-status plants; revegetating disturbed areas; controlling invasive weeds and preventing infestations by newly introduced weeds; and providing for long-term conservation and management of native vegetation on compensation lands. Under CEQA, there would be no unavoidable significant impacts to these resources. However, even less-than-significant adverse impacts can combine with impacts of other past, present, and reasonably foreseeable projects to result in a significant cumulative impact to vegetation resources. In this case, even with implementation of Mitigation Measures VEG-1 through MM VEG-10, Alternative 4 would have a considerable contribution to the cumulatively significant regional impacts to sensitive natural communities and state-jurisdictional streambeds, due to the residual and unavoidable impacts to these resources described in Sections 4.3.7 and 4.3.12.

There would be no significant impacts, at either the project level or cumulatively, under criteria VEG-3, VEG-4, and VEG-5 because Alternative 4 would be consistent with local plans and policies (i.e., the County of Riverside General Plan), and there are no federally protected wetlands or habitat conservation plans in the project area.

Alternative 5. Under Alternative 5, the direct and indirect impacts of project construction, operation, and decommissioning, to vegetation resources, including native plant communities, special-status plant taxa, and state-jurisdictional streambeds, as described in Section 4.3.8, would be significant under criteria VEG-1 (impacts to special-status plants) and VEG-2 (impacts to sensitive natural communities), above.

With implementation of Mitigation Measures VEG-1 through MM VEG-10, these impacts to vegetation resources would be mitigated to less than significant levels under CEQA by minimizing vegetation impacts to the extent practicable; mitigating direct impacts to special-status plants; revegetating disturbed areas; controlling invasive weeds and preventing infestations by newly introduced weeds; and providing for long-term conservation and management of native vegetation on compensation lands. Under CEQA, there would be no unavoidable significant impacts to these resources. However, even less-than-significant adverse impacts can combine with impacts of other past, present, and reasonably foreseeable projects to result in a significant cumulative impact to vegetation resources. In this case, even with implementation of Mitigation Measures VEG-1 through MM VEG-10, Alternative 5 would have a considerable contribution to the cumulatively significant regional impacts to sensitive natural communities and state-jurisdictional streambeds, due to the residual and unavoidable impacts to these resources described in Sections 4.3.7 and 4.3.12.

There would be no significant impacts, at either the project level or cumulatively, under criteria VEG-3, VEG-4, and VEG-5 because Alternative 5 would be consistent with local plans and policies (i.e., the County of Riverside General Plan), and there are no federally protected wetlands or habitat conservation plans in the project area.

Alternative 6. Under Alternative 6, the direct and indirect impacts of project construction, operation, and decommissioning, to vegetation resources, including native plant communities, special-status plant taxa, and state-jurisdictional streambeds, as described in Section 4.3.8, would be significant under VEG-2 (impacts to sensitive natural communities), above.

With implementation of Mitigation Measures VEG-1 through MM VEG-10, excluding MM VEG-7, these impacts to vegetation resources would be mitigated to less than significant levels under CEQA by minimizing vegetation impacts to the extent practicable; revegetating disturbed areas; controlling invasive weeds and preventing infestations by newly introduced weeds; and providing for long-term conservation and management of native vegetation on compensation lands. Under CEQA, there would be no unavoidable significant impacts to these resources. However, even less-than-significant adverse impacts can combine with impacts of other past, present, and reasonably foreseeable projects to result in a significant cumulative impact to vegetation resources. In this case, even with implementation of Mitigation Measures VEG-1 through MM VEG-10, Alternative 6 would have a considerable contribution to the cumulatively significant regional impacts to sensitive natural communities and state-jurisdictional streambeds, due to the residual and unavoidable impacts to these resources described in Sections 4.3.7 and 4.3.12.

There would be no significant impacts, at either the project level or cumulatively, under criteria VEG-3, VEG-4, and VEG-5 because Alternative 6 would be consistent with local plans and policies (i.e., the County of Riverside General Plan), and there are no federally protected wetlands or habitat conservation plans in the project area.

Alternative 7. Under Alternative 7, the direct and indirect impacts of project construction, operation, and decommissioning, to vegetation resources, including native plant communities, special-status plant taxa, and state-jurisdictional streambeds, as described in Section 4.3.8, would be significant under VEG-2 (impacts to sensitive natural communities), above.

With implementation of Mitigation Measures VEG-1 through MM VEG-10, excluding MM VEG-7, these impacts to vegetation resources would be mitigated to less than significant levels under CEQA by minimizing vegetation impacts to the extent practicable; revegetating disturbed areas; controlling invasive weeds and preventing infestations by newly introduced weeds; and providing for long-term conservation and management of native vegetation on compensation lands. Under CEQA, there would be no unavoidable significant impacts to these resources. However, even less-than-significant adverse impacts can combine with impacts of other past, present, and reasonably foreseeable projects to result in a significant cumulative impact to vegetation resources. In this case, even with implementation of Mitigation Measures VEG-1 through MM VEG-10, Alternative 7 would have a considerable contribution to the cumulatively significant regional impacts to sensitive natural communities and state-jurisdictional streambeds, due to the residual and unavoidable impacts to these resources described in Sections 4.3.7 and 4.3.12.

There would be no significant impacts, at either the project level or cumulatively, under criteria VEG-3, VEG-4, and VEG-5 because Alternative 7 would be consistent with local plans and policies (i.e., the County of Riverside General Plan), and there are no federally protected wetlands or habitat conservation plans in the project area.

Alternative A. Under Alternative A, no gen-tie line would be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, the proposed gen-tie line would not be constructed and BLM would continue to manage the ROW consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended (including the Desert Sunlight amendment). It is expected that the Desert Sunlight gen-tie line would be built within the ROW, and that impacts to vegetation resources would be as described in the Desert Sunlight EIS (BLM 2011). No significant impacts to vegetation resources would result from Alternative A. Alternative A would not contribute to any significant cumulative impact.

Alternative B. Under Alternative B, the direct and indirect impacts of gen-tie line construction, operation, and decommissioning, to vegetation resources, including native plant communities, special-status plant taxa, and state-jurisdictional streambeds, as described in Section 4.3.12, would be significant under VEG-2 (impacts to sensitive natural communities), above.

With implementation of Mitigation Measures VEG-1 through MM VEG-9, excluding MM VEG-7, these impacts to vegetation resources would be mitigated to less than significant levels under CEQA by minimizing vegetation impacts to the extent practicable; revegetating disturbed areas; controlling invasive weeds and preventing infestations by newly introduced weeds; and providing for long-term conservation and management of native vegetation on compensation lands. Under CEQA, there would be no unavoidable significant impacts to these resources. Alternative B would not contribute to cumulative vegetation effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

There would be no significant impacts, at either the project level or cumulatively, under criteria VEG-3, VEG-4, and VEG-5 because Alternative B would be consistent with local plans and policies (i.e., the County of Riverside General Plan), and there are no federally protected wetlands or habitat conservation plans in the project area.

Alternative C. Under Alternative C, the direct and indirect impacts of gen-tie line construction, operation, and decommissioning, to vegetation resources, including native plant communities, special-status plant taxa, and state-jurisdictional streambeds, as described in Section 4.3.13, would be significant under VEG-2 (impacts to sensitive natural communities), above.

With implementation of Mitigation Measures VEG-1 through MM VEG-9, excluding MM VEG-7, these impacts to vegetation resources would be mitigated to less than significant levels under CEQA by minimizing vegetation impacts to the extent practicable; revegetating disturbed areas; controlling invasive weeds and preventing infestations by newly introduced weeds; and providing for long-term conservation and management of native vegetation on compensation lands. Under CEQA, there would be no unavoidable significant impacts to these resources. However, even less-than-significant adverse impacts can combine with impacts of other past, present, and reasonably foreseeable projects to result in a significant cumulative impact to vegetation resources. In this case, mitigation requirements would compensate for or minimize impacts to such a degree that Alternative C would not represent a considerable contribution to cumulative impacts on vegetation resources.

There would be no significant impacts, at either the project level or cumulatively, under criteria VEG-3, VEG-4, and VEG-5 because Alternative C would be consistent with local plans and pol-

icies (i.e., the County of Riverside General Plan), and there are no federally protected wetlands or habitat conservation plans in the project area.

Alternative D. Under Alternative D, the direct and indirect impacts of gen-tie line construction, operation, and decommissioning, to vegetation resources, including native plant communities, special-status plant taxa, and state-jurisdictional streambeds, as described in Section 4.3.14, would be significant under criteria VEG-1 (impacts to special-status plants) and VEG-2 (impacts to sensitive natural communities), above.

With implementation of Mitigation Measures VEG-1 through MM VEG-9, these impacts to vegetation resources would be mitigated to less than significant levels under CEQA by minimizing vegetation impacts to the extent practicable; revegetating disturbed areas; controlling invasive weeds and preventing infestations by newly introduced weeds; and providing for long-term conservation and management of native vegetation on compensation lands. Under CEQA, there would be no unavoidable significant impacts to these resources. However, even less-than-significant adverse impacts can combine with impacts of other past, present, and reasonably foreseeable projects to result in a significant cumulative impact to vegetation resources. In this case, mitigation requirements would compensate for or minimize impacts to such a degree that Alternative D would not represent a considerable contribution to cumulative impacts on vegetation resources.

There would be no significant impacts, at either the project level or cumulatively, under criteria VEG-3, VEG-4, and VEG-5 because Alternative D would be consistent with local plans and policies (i.e., the County of Riverside General Plan), and there are no federally protected wetlands or habitat conservation plans in the project area.

Alternative E. Under Alternative E, the direct and indirect impacts of gen-tie line construction, operation, and decommissioning, to vegetation resources, including native plant communities, special-status plant taxa, and state-jurisdictional streambeds, as described in Section 4.3.15, would be significant under criteria VEG-1 (impacts to special-status plants) and VEG-2 (impacts to sensitive natural communities), above. Although portions of the Alternative E alignment would be within a sand transport corridor, the gen-tie towers and access road would not significantly affect aeolian sand transport.

With implementation of Mitigation Measures VEG-1 through MM VEG-9, these impacts to vegetation resources would be mitigated to less than significant levels under CEQA by minimizing vegetation impacts to the extent practicable; revegetating disturbed areas; controlling invasive weeds and preventing infestations by newly introduced weeds; and providing for long-term conservation and management of native vegetation on compensation lands. Under CEQA, there would be no unavoidable significant impacts to these resources. However, even less-than-significant adverse impacts can combine with impacts of other past, present, and reasonably foreseeable projects to result in a significant cumulative impact to vegetation resources. In this case, mitigation requirements would compensate for or minimize impacts to such a degree that Alternative E would not represent a considerable contribution to cumulative impacts on vegetation resources.

There would be no significant impacts, at either the project level or cumulatively, under criteria VEG-3, VEG-4, and VEG-5 because Alternative E would be consistent with local plans and policies (i.e., the County of Riverside General Plan), and there are no federally protected wetlands or habitat conservation plans in the project area.

4.4 BIOLOGICAL RESOURCES – WILDLIFE

4.4.1 Methodology for Analysis

This analysis is based on information from the focused wildlife surveys, habitat assessments, reconnaissance surveys, and avian point-count studies conducted for the Desert Harvest Solar Project (DHSP), as well as information found in the CNDDB and lists of special-status species for the region (see Chapter 3.4). As discussed in Chapter 3.4, the Biological Resources Technical Report (BRTR), and the BRTR Supplement for Gen-Tie Alternative E (located in Appendices C.6 and C.16 respectively), focused wildlife surveys were conducted concurrently for desert tortoise (*Gopherus agassizii*) and burrowing owl (*Athene cunicularia*), a habitat assessment was conducted for the Mojave fringe-toed lizard (*Uma scoparia*), winter and spring avian point counts were conducted according the Bureau of Land Management (BLM) protocol for solar energy developments, a focused survey for Gila woodpecker (*Melanerpes uropygialis*) was conducted on the proposed solar facility site, and winter surveys for golden eagle (*Aquila chrysaetos*) were conducted throughout a 10-mile radius surrounding the project site. A discussion of the vegetation resources currently present in the project area is provided in Chapter 3.3, and impacts to vegetation resources are addressed in Chapter 4.3.

Impact analyses typically characterize effects to habitat as temporary or permanent. Due to the slow habitat recovery rates in desert ecosystems, impacts that might be considered temporary in other parts of California will be considered long-term or permanent in this analysis (see Section 4.3.1).

Direct and indirect impacts of each action alternative to wildlife are discussed in Sections 4.4.4 through 4.4.15. The analysis of direct and indirect impacts covers construction, operations and maintenance (O&M), and decommissioning of the proposed project. Direct effects include the direct or immediate effects of the project on a species or its habitat. Examples of direct impacts to wildlife include injury or death to an individual; habitat loss or degradation; interference with movement or migration; and disturbance from noise, light, or dust. Indirect effects include those effects that are caused by or will result from the proposed project and are later in time or farther removed in distance, but are still reasonably certain to occur. Examples of indirect effects to wildlife include increased predation due to certain habitat alterations, and the introduction of invasive plant or animal species that compete with native species and cause habitat degradation.

4.4.2 Summary of Impacts

The impacts of the proposed project and alternatives to vegetation resources are summarized in Section 4.3.2, and described in further detail in Sections 4.3.4 through 4.3.15. Impacts to natural vegetation types are summarized in Tables 4.3-1 and 4.3-2. In the following analysis of impacts to wildlife, these acreages of natural vegetation provide the basis for evaluating impacts to wildlife habitat because the vegetation resources assessed in Chapter 4.3 also provide habitat for the special-status wildlife addressed herein. Alternatives 4 and B, the Applicant's proposed solar project and gen-tie line (proposed project), would remove 1,067 acres of Creosote Bush Scrub (defined as Sonoran Desert Scrub in the NECO Plan) and 231 acres of Blue Palo Verde–Ironwood Woodland (defined as Desert Dry Wash Woodland in the NECO Plan). All project alternatives are described in Section 2. See Tables 4.3-1 and 4.3-2 for a summary of impacts to vegetation and habitat for each alternative.

Portions of the proposed project and alternatives would occur within areas designated as special management areas for wildlife. These include the Chuckwalla Desert Wildlife Management Area (DWMA; see Sections 3.4.1 and 3.4.2); the Palen-Ford Wildlife Habitat Management Area (WHMA; see Sections 3.4.1 and 3.4.2); and the Chuckwalla Critical Habitat Unit for desert tortoise (CHU; see Section 3.4.5). Tables 4.4-1 and 4.4-2 summarize the acreages of each alternative's impacts to wildlife management areas.

Table 4.4-1. Summary of Impacts to WHMAs – Solar Generation Site Alternatives

	Impacts (acres)			
Management Area	**Alternative 4: Proposed Solar Project**	**Alternative 5: Solar Project Excluding WHMA**	**Alternative 6: Reduced Footprint Solar Project**	**Alternative 7: High-Profile Reduced Footprint Solar Project**
Chuckwalla DWMA only	—	—	—	—
Chuckwalla CHU only	—	—	—	—
DWMA and CHU overlap area	—	—	—	—
Palen-Ford WHMA	46	—	46	46
Total Acres in Wildlife Management Areas	46	—	46	46

Table 4.4-2. Summary of Impacts to WHMAs – Gen-Tie Line Alternatives[1]

	Impacts (acres)			
Management Area	**Alternative B: Proposed Gen-Tie – Shared Towers**	**Alternative C: Separate Transmission Towers Within Same ROW**	**Alternative D: Cross-Valley Alignment**	**Alternative E: New Cross-Valley Alignment**
Chuckwalla DWMA only	—	—	—	2.5
Chuckwalla CHU only	34.2	34.2	12.4	—
DWMA and CHU overlap area	1.5	1.5	1.7	1.8
Palen-Ford WHMA	—	—	6.2	51.8
Total Acres in Wildlife Management Areas[2]	**35.7**	**35.7**	**20.3**	**56.1**

1 - Estimated acreage based on proportion of alignment within each management area, and the estimated disturbance acreage provided by the Applicant for each alternative

2 - The total acreage within wildlife management areas is not the sum of the DWMA, CHU, and WHMA areas due to partial overlap of the DWMA and CHU (see Figure 3.4-1, Wildlife Management Areas, in Appendix A), but rather is the total acres that fall within one or more designated WHMAs.

4.4.3 Applicant-Proposed Measures

The Applicant has provided several measures as part of the project design that would be implemented during construction, operation, and/or decommissioning to reduce potential impacts to wildlife. In some cases, mitigation measures further clarify or expand on AM reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures imposed and the following AM, the mitigation measures take precedence.

Applicant-proposed measures to reduce impacts to wildlife resources include the following:

AM-BIO-1 **Habitat Compensation Plan.** (Text provided in Section 4.3, Biological Resources – Vegetation).

AM-BIO-2 **Integrated Weed Management Plan (IWMP).** (Text provided in Section 4.3, Biological Resources – Vegetation).

AM-BIO-4 **Worker Environmental Awareness Program (WEAP).** (Text provided in Section 4.3, Biological Resources – Vegetation).

AM-BIO-5 **Vegetation Resources Management Plan.** (Text provided in Section 4.3, Biological Resources – Vegetation).

AM-BIO-6 A **Desert Tortoise Translocation Plan** will be prepared for the project and will be implemented by the Applicant to ensure that construction monitoring will be conducted by BLM-, USFWS-, and CDFG-approved biologists during all construction activities, and that any desert tortoise found with the construction zone will be translocated to a suitable location outside of the project footprint. The Final Plan will conform to the 2010 USFWS desert tortoise relocation guidelines entitled *Translocation of Desert Tortoise (Mojave Population) From Project Sites: Plan Development Guidance* (unpublished report dated August 2010).

AM-BIO-7 The Applicant shall contribute to the USFWS Regional Raven Management Program by making a one-time payment of $105 per acre of project disturbance to the National Fish and Wildlife Federation Renewable Energy Action Team raven control account. An **Avian and Bat Protection Plan** will be prepared and will be implemented by the Applicant to specify necessary actions to be taken to protect nesting bird and bat species, including burrowing owls, nesting birds, and roosting bats. The Draft Plan will be reviewed and approved by BLM. The Final Plan will conform to the 2010 USFWS avian and bat guidelines entitled Considerations for Avian and Bat Protection Plans U.S. Fish and Wildlife Service White Paper.

AM-BIO-8 **Construction Water Storage Pond Design.** The temporary construction water ponds shall be designed, constructed, and operated in compliance with all applicable regulatory requirements with respect to design, operation, and maintenance, protection of migratory waterfowl, and raven management.

4.4.4 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, the proposed project and gen-tie line would not be constructed and the BLM would continue to manage the project site consistent with the existing land use designation in the CDCA Plan.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, impacts from the DHSP would not occur and project sites would continue to be affected by current uses.

4.4.5 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.4.6 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.4.7 Alternative 4 – Proposed Solar Project

Alternative 4 is the Applicant's proposed solar project, described in Chapter 2.4 and briefly summarized in Section 4.3. The project would be located on 1,208 acres, and would be comprised of two separate parcels separated by a desert wash. The northern parcel would be 1,053 acres and the southern parcel would be 155 acres (see Figure 2-2 in Appendix A).

Construction

Project construction, including construction methods, equipment, scheduling, and phasing, are described in Chapter 2.4.4. Most construction impacts to wildlife and wildlife habitat would occur during Phase 2 (September 2013 to November 2014), which would include site fencing, installation of temporary power, site grading and preparation over an 1,043-acre area, and other facilities. Construction would generally occur 2 hours before sunrise and 2 hours after sunset, Monday through Friday, but construction during additional hours may be necessary at times.

Direct Effects

Construction activities associated with Alternative 4 would directly affect wildlife in a number of ways, including the long-term and permanent loss of habitat, disturbance from noise and human activity, injury or mortality of animals, and interference with wildlife movement. Long-term and permanent impacts to vegetation and habitat are defined in Section 4.3.1. Although the project site would ultimately be decommissioned (Chapter 2), the proposed project does not identify a land use following closure of the solar facility. While decommissioning may include efforts to restore pre-project habitat values, it is unknown at this time whether (1) restoration will be recommended, and (2) whether it would be feasible, considering the proposed long-term land use. Therefore, impacts to vegetation and habitat that will last for the life of the project are presumed to be "permanent" in this analysis. These effects are discussed in detail below, and mitigation measures to reduce the severity of these effects are presented at the end of this section. See also the Applicant's Draft Closure and Reclamation Plan in Appendix C.18 of this Final EIS.

Wildlife Habitat. The term *habitat* refers to the environment and ecological conditions where a species is found. Wildlife habitat is generally described in terms of vegetation, though a more

thorough explanation often must encompass further detail, such as availability or proximity to water; suitable nesting or denning sites; shade; foraging perches; cover sites to escape from predators; soils that are suitable for burrowing or hiding; limited noise and disturbance; and many other factors that are unique to each species. Vegetation reflects many aspects of habitat, including regional climate, physical structure, and biological productivity and food resources (for many wildlife species). Thus, vegetation is a useful overarching descriptor for habitat and it is the primary factor in this analysis of impacts to wildlife habitat. Where additional details of habitat suitability are necessary to this analysis, they are provided in the discussion of special-status wildlife species in Section 3.4. Examples include the aeolian sand requirements for Mojave fringe-toed lizard, and the availability of shade, cover, and water for burro deer. Project construction would result in permanent and long-term impacts to 1,206 acres of natural vegetation (i.e., all native vegetation on the site), including 1,026 acres of Creosote Bush Scrub (Sonoran Desert Scrub) and 180 acres of Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland). Following construction, any remaining or recovering vegetation and habitat would be unsuitable for most species, particularly species with specific habitat requirements, including most special-status wildlife species. Vegetation and habitat conditions following construction may remain suitable for some common species, such as side-blotched lizard, house finch, northern mockingbird, and desert cottontail. The project's direct adverse impacts to wildlife habitat would be substantial but can be reduced or offset through implementation of Mitigation Measures VEG-1 through MM VEG-6, which describe requirements for monitoring, reporting, managing, and compensating for biological resources impacts. These impacts and mitigation measures are described in full in Section 4.3.7. In combination, these measures would ensure that project impacts to biological resources are minimized and do not exceed the impacts described herein; that all such impacts are documented and reported to resource agencies; that communication among the project owner and resource agencies is maintained during construction, O&M and decommissioning phases via the Designated Biologist; that workers on the site are informed of the requirements for protection of biological resources; that adverse impacts to soils, vegetation, and habitat are mitigated to the extent feasible; and that loss of vegetation and habitat is compensated by permanent protection and management of comparable habitat off site. These measures are expected to effectively mitigate the majority of the project's adverse impacts to wildlife habitat, though some residual impacts would remain (below).

Wildlife Mortality. Construction would generally cause mortality of mammals and reptiles, which would be hindered or prevented from escaping the construction site by the project's perimeter fencing and desert tortoise exclusion fence, described further below. Mortality could also result from trampling or crushing during clearing, grading, or excavation of trenches for underground power collection lines and water storage ponds/retention basins. Potential mortality to native birds and nestlings is discussed below. This direct adverse impact to wildlife could be substantial but can be somewhat reduced through Mitigation Measure WIL-1 (Wildlife Impact Avoidance and Minimization). This measure would reduce wildlife mortality through a variety of strategies, including exclusion fencing to keep animals out of construction areas; closing or covering trenches, open pipes, or other potential traps to wildlife; speed limits and other measures to minimize road strikes; and the salvage or relocation of animals during initial clearing and grading, as practicable. Even with implementation of MM WIL-1, initial clearing and site preparation work could cause mortality among most small mammals and reptiles unable to escape.

Noise and Lighting Impacts to Wildlife. Maximum noise levels during construction are estimated to range from 74.8 to 83.2 dBA at 100 feet from construction activity, and would decrease with distance away from activity. This would be a substantial increase over existing background noise levels near the solar facility, which are expected to be low, with typical daytime noise levels of 35 to 50 dBA. See Section 4.12 (Environmental Consequences – Noise and Vibration) for estimated noise levels associated with various construction activities that would occur on the site. In addition, if construction activities were to occur at night, lighting would be required. Noise and lighting during construction would affect wildlife in adjacent habitats by disrupting foraging, breeding, sheltering, and other activities; or it may cause animals to avoid otherwise suitable habitat surrounding the site. The effects of construction noise include annoyance, which causes birds and other wildlife to abandon nests or dens; increased stress hormone levels, interference with sleep and other activities; and interference with acoustic communication by masking important sounds or sound components, such as territorial calls, contact calls, or alarm calls (Dooling and Popper 2007). Many species rely on vocalizations during the breeding season to attract a mate within their territory, and noise from construction could disturb nesting birds and other wildlife and adversely affect nesting and other activities.

In addition to noise, lighting during project construction may affect nocturnal wildlife species. Lighting can affect behavior and physiology, and may also increase the risk of predation of wildlife because they may be more detectable to nocturnal predators (USACE and CDFG 2009). Lighting would be likely to attract nocturnal insects and, in turn, bats; possibly including special-status bats, discussed further below. This direct adverse impact to wildlife on the site and in adjacent habitat may be substantial. Mitigation Measure WIL-1 (Wildlife Impact Avoidance and Minimization) and MM VIS-1 would minimize the impacts of noise and lighting to the extent feasible by ensuring that lighting is focused only on work areas and does not unnecessarily extend beyond work areas, and scheduling noisy construction activities near the project site perimeter outside the most sensitive seasons (i.e., the spring avian breeding season). These measures would minimize potential noise and lighting impacts to wildlife in the area, but would not eliminate them and these disturbances are expected to adversely affect wildlife behavior and habitat use in the area immediately surrounding the site.

Construction Phase Water Storage Ponds: During construction, storage ponds on the site would be used to store water for dust control. These ponds would be within the fenced construction area. Even though they would be fenced, they will be likely to attract birds, including ravens, and thus act as a "subsidy" (see discussion of impacts during the O&M phase, below). Storage ponds would be likely to attract nocturnal insects and, in turn, bats; possibly including special-status bats, discussed further below. The storage ponds may present drowning hazards to reptiles, small mammals, and desert kit fox in the vicinity of the construction area, depending on their slopes and surfaces. However, most terrestrial wildlife exposure to the ponds would be limited by the perimeter exclusion fencing, and any animals that could encounter the ponds would likely be those that remain within the fence line at the start of construction activities. This adverse impact to wildlife in the project area may be substantial. Mitigation Measure WIL-1 (Wildlife Impact Avoidance and Minimization) includes a requirement to periodically inspect wildlife pitfalls, including storage ponds, to avoid or minimize wildlife entrapment. Mitigation Measure WIL-7 (Desert Kit Fox and American Badger Impact Avoidance) requires pre-construction surveys and exclusion of any desert kit fox or badger from the solar facility prior to

beginning construction. These measures are expected to minimize adverse impacts of the storage ponds to wildlife, but would not fully eliminate these impacts.

Desert Tortoise. Desert tortoises have not been documented within the solar facility site, but are expected to be present based on nearby known occurrences and desert tortoise sign located on the site during field surveys (see BRTR, Appendices C.6 and C.16). The proposed solar facility site and surrounding area is modeled as relatively low value habitat for desert tortoise. The USGS Desert Tortoise Habitat Model (Nussear et al. 2009), using a scale of 0.0 to 1.0, assigns a value of 0 to 718.6 acres of the proposed project's solar field, a value of 0.1 to 484 acres of the proposed project's solar field, and a value of 0.2 to the remaining 4.6 acres of the solar field. However, despite these low values desert tortoise sign was detected on the project site and desert tortoise were detected on adjacent lands. None of the burrows or other sign observed on the site exhibited any evidence of recent use, but the existing habitat on site consists of relatively intact creosote bush scrub and wash communities, all of which is habitat known to support desert tortoise. Desert tortoises are found throughout the region and are mobile during their active seasons. Based on the presence of active desert tortoises on the adjacent Desert Sunlight Solar Farm Project (Desert Sunlight) site, it was determined that the entire solar facility site may be occupied by desert tortoises at any time, albeit only in low numbers. Implementation of Alternative 4 would result in the permanent and long-term loss of 1,208 acres of desert tortoise habitat, presumed to be occupied, and located within a geographic region that is occupied by desert tortoises. Project construction would also prevent desert tortoises from crossing the solar facility site to access habitat elsewhere in or around the Chuckwalla Valley.

Because of the large-scale land use conversion of the project site, and associated activities such as vehicle traffic and other actions, construction of the solar facility would require the Applicant to translocate any tortoises found within the 1,208-acre project site Prior to construction, the site would be fenced with desert tortoise exclusionary fencing to permanently exclude tortoises, to avoid risk of injury or mortality to tortoises during project O&M. For tortoises near but not within the site, fencing off habitat within their home ranges would likely result in displacement effects as described below (Indirect Effects).

No living desert tortoises were found within the project site. However, the actual number of desert tortoises on the project site as of the commencement of construction cannot be determined from field survey data alone, due to the possibility that tortoises may have been overlooked during surveys or may have moved onto the site since surveys were completed. The USFWS (2010a) provides a mathematical formula for estimating actual numbers of adult and sub-adult desert tortoises from field survey data. However, this formula is not applicable for the available field data because no living tortoises were observed. Based on the presence of active desert tortoises on the adjacent Desert Sunlight Solar Farm Project site and associated gen-tie alignments, it was determined that the entire solar facility site and all gen-tie alternative alignments may be occupied by desert tortoises at any time, albeit in low numbers. The remainder of this analysis is based on the estimate that more than five desert tortoises occur on the solar facility site, and would necessitate translocation prior to construction. However, it should be noted that this is a conservative approach, and it is likely that fewer tortoises would actually be translocated for the DHSP.

During construction of the proposed project or its alternatives, desert tortoises or eggs could be harmed during clearing, grading, and trenching activities, or tortoises could become entrapped

within open trenches and pipes. Construction activities could also cause direct mortality, injury, or harassment of tortoises or eggs as a result of encounters with vehicles or heavy equipment. Other direct effects could include individual tortoises or eggs being crushed or entombed in their burrows, disruption of tortoise behavior during construction or operation of facilities, disturbance by noise or vibrations from the heavy equipment, and injury or mortality from encounters with workers' or visitors' pets. Desert tortoises may also be attracted to the construction area by shade beneath vehicles, equipment, or materials, or the application of water to control dust, placing them at higher risk of injury or mortality. Increased human activity and vehicle travel could disturb, injure, or kill individual tortoises. Also, tortoises may take shelter under parked vehicles where they could be killed, injured, or harassed when the vehicle is moved.

The project's potential adverse impacts to any desert tortoises on the site and to long-term habitat availability could be substantial. These impacts can be avoided, reduced, or offset through implementation of mitigation measures in Sections 4.3.7 and additional measures summarized here and presented below in a section entitled "Mitigation Measures." Mitigation Measures VEG-1 through MM VEG-6 would require monitoring and reporting, worker environmental training, minimization of construction impacts, and off-site compensation for habitat impacts at a minimum 1:1 ratio. In addition, Mitigation Measure WIL-1 (Wildlife Impact Avoidance and Minimization) includes numerous requirements to prevent wildlife road strikes, entrapment in pitfalls, interactions with workers' pets, and other threats. MM WIL-2 (Desert Tortoise Clearance Surveys, Exclusion Fencing, and Translocation) requires that the project owner exclude desert tortoises from the project site, survey the entire site for tortoises prior to initial clearing and grading, and relocate any tortoises in accordance with a project-specific Desert Tortoise Translocation Plan to be prepared by the project owner and implemented only upon approval by the USFWS and CDFG.

Desert tortoise clearance surveys and translocation have inherent risks and could themselves result in direct adverse effects to desert tortoises, such as mortality, injury, or harassment of desert tortoises due to equipment operation, fence installation, removal of tortoise burrows, and tortoise translocation (described in more detail below). Mitigation of desert tortoise habitat loss is also described further below. The suite of measures to mitigate the project's adverse impacts to desert tortoises and their habitat is expected to fully mitigate these impacts as required under CESA. In addition to the mitigation measures required by this document, the project will be subject to review by the USFWS and CDFG under the ESA and CESA, respectively.

Critical Habitat. The project site is not within designated critical habitat for desert tortoise. Impacts of the various gen-tie line alignments to designated critical habitat are discussed in Sections 4.4.12 through 4.4.15.

Translocation. Any tortoises found during clearance surveys would be translocated out of the project area. However, it is possible that some tortoises, particularly juveniles or tortoise eggs, would be overlooked during clearance surveys because of the cryptic nature of tortoises. Similarly, egg clutches would be in burrows below ground and might also be missed during clearance surveys. As a result, these tortoises and eggs would be subject to mortality from project activities within the tortoise exclusion fence during construction and future operation of the project. Mortality would be minimized through other measures, including MM WIL-1 (Wildlife Impact Avoidance and Minimization).

Because handling and translocation cause risk to tortoise survival, all translocated tortoises must be radio-tagged and monitored to evaluate translocation success. If five or more tortoises are translocated, the USFWS (2010b) also requires radio-tagging and follow-up monitoring of an equal number of host population tortoises at each translocation site. In addition, USFWS requires radio-tagging and follow-up monitoring of an equal number of tortoises at a selected control site, where no translocated animals have been introduced. For the solar facility, the analysis here and in the Biological Assessment is based on the estimate that five or more desert tortoises occur on the solar facility site, and would necessitate translocation prior to construction. However, it should be noted that this is a conservative approach, and it is likely that fewer tortoises would actually be translocated for the DHSP. Any tortoises removed from the project site would be translocated more than 500 meters to suitable off-site habitat on BLM land.

Desert tortoise translocation would require a series of actions including, but not limited to, the following activities (USFWS 2010b):

- Identification of the proposed translocation site(s);
- determination of existing tortoise density and health assessment at the translocation site, and an assessment of the site's ability to accommodate additional tortoises above baseline conditions;
- health assessments and equipment or facilities for in situ or ex situ tortoises quarantine prior to their release into host populations; and
- GPS monitoring of translocated tortoises.

Translocation impacts to desert tortoises may include elevated stress hormones, changes in behavior and social interaction, increased movement (caused by courting or aversive behavior with other tortoises, avoidance of predators or anthropogenic influence, homing, or seeking out of preferred or familiar habitat), spread of disease, increased competition for resources, and increased predation. Furthermore, handling, holding, and transport protocols may compound with abiotic factors to affect the outcome for translocated individuals (Bertolero et al. 2007; Field et al. 2007; Rittenhouse et al. 2007; Germano and Bishop 2009), particularly during extreme temperatures, or if tortoises void their bladders (which function in water storage and physiology). Pathogens may be inadvertently spread among tortoises during handling. Tortoises moved outside their home ranges may attempt to return, leading to displacement effects (see Indirect Effects, below). Mortality estimates among translocated desert tortoises have ranged from 15% to 25% and possibly as high as 50% for the Fort Irwin translocation project, though the effects of translocation are difficult to separate from the effects of region-wide drought (Esque et al. 2010). The risks and uncertainties of translocation to desert tortoise are well recognized in the desert tortoise scientific community. The Desert Tortoise Recovery Office (DTRO) Science Advisory Committee (SAC) has made the following observation regarding desert tortoise translocations (DTRO 2009, p. 2):

> *. . . consensus (if not unanimity) exists among the SAC and other meeting participants that translocation is fraught with long-term uncertainties, notwithstanding recent research showing short-term successes, and should not be considered lightly as a management option. When considered, translocation should be part of a strategic population augmentation program, targeted toward depleted Populations in areas containing "good" habitat. The SAC recognizes that quantitative measures of habitat quality relative to desert tortoise demographics or population status currently do not exist, and a specific measure of*

"depleted" (e.g., ratio of dead to live tortoises in surveys of the potential translocation area) was not identified. Augmentations may also be useful to increase less depleted populations if the goal is to obtain a better demographic structure for long-term population persistence. Therefore, any translocations should be accompanied by specific monitoring or research to study the effectiveness or success of the translocation relative to changes in land use, management, or environmental condition.

In recognition of the concerns about desert tortoise translocation and the ongoing research needs to improve the effectiveness of translocation, Mitigation Measure WIL-2 requires that the Translocation Plan include an alternate strategy, in which desert tortoises would be removed from the wild at the project site and placed permanently into conservation facilities approved by USFWS and CDFG. Upon completion of a final Desert Tortoise Translocation Plan and issuance of the Biological Opinion from USFWS and Incidental Take Permit or Consistency Determination from CDFG, the project owner shall adopt measures to either translocate tortoises into the wild or to permanently place them in approved facilities. This measure is intended to inform and improve translocation efforts, and enhance the Final Desert Tortoise Translocation Plan's ability to minimize impacts associated with take of desert tortoises and overall impacts to the species.

Mitigation for Desert Tortoise Habitat Loss. Mitigation of desert tortoise habitat loss would be accomplished through implementation of Mitigation Measure VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat). This measure requires (1) permanent protection and management of the compensation lands for desert tortoise (compensation lands would be acquired at a minimum 1:1 ratio for occupied desert tortoise habitat), and (2) enhancement actions, as needed, such as habitat restoration, invasive plant control, road closures or road fencing, reducing or eliminating livestock and burro grazing, and controlling ravens and other predators. The decision to make specific improvements would be based on site-specific evaluation of the proposed compensation lands, and need for improvements or management actions. These enhancement actions would be made as site-specific initial improvements or included in the long-term management plan for each compensation parcel. MM VEG-6 requires that the compensation lands for impacts to desert tortoise shall be within the Colorado Desert Tortoise Recovery Unit. MM VEG-6 includes an estimate of total cost to acquire and manage compensation lands, based on current estimates of land values, evaluation and transaction costs, habitat improvements, and long-term management. According to MM VEG-6, the project owner would be required to provide the compensation lands, or to provide financial assurance sufficient to carry out the habitat acquisition and management, no later than 30 days prior to initiation of ground disturbance. The Applicant is currently working with Wildlands Inc. to develop a suitable compensation strategy addressing the resources and ratios described in MM VEG-6 (see Appendix C.12). Specific compensation land availability cannot be identified or quantified at this time. Wildlands Inc. provided a review of private land availability in the area during a meeting with resource agencies on March 2, 2012, indicating that acquisition of the requisite acreage of suitable compensation lands to mitigate desert tortoise habitat loss is feasible. Availability of most requisite acreage within the Interstate-10 corridor, as described in MM VEG-6 is feasible but acquisition at the full 1:1 ratio may be challenging.

Special-Status Reptiles and Amphibians. Based on habitat and geographic range, desert tortoise and rosy boa are the only special-status reptile or amphibian species with a moderate or greater probability of occurring on the project site (Section 3.4). The Mojave fringe-toed lizard,

a BLM Sensitive Species known from the area, is not expected to occur on the site due to absence of suitable aeolian sand habitat. No other BLM-designated Sensitive reptile or amphibian species are known from the project study area (see Section 3.4 and Appendices C.6 and C.13). Project impacts and mitigation for desert tortoises are described above. Habitat on the project site is only marginally suitable for rosy boa due to the relatively flat topography and lack of boulders or rock crevices where they typically take cover. However, the site is within their geographic range and could be occupied at low density. Project impacts to rosy boa could include mortality or injury to snakes, and the loss of marginally suitable habitat. These adverse impacts can be reduced or offset through implementation of Mitigation Measures VEG-1 through MM VEG-6 (described above and in full in Section 4.3.7) and MM WIL-1 (Wildlife Impact Avoidance and Minimization), below. These measures would require biological monitoring during construction activities, moving rosy boas out of harm's way, worker environmental awareness training, restoration of temporarily impacted areas, compensation for permanently impacted habitat at a minimum 1:1 ratio, minimization of impact areas, vehicle speed limits of 15 miles per hour, measures to avoid creating wildlife pitfalls, and control of fugitive dust.

Native Birds. Native birds are protected under the California Fish and Game Code and federal Migratory Bird Treaty Act (MBTA) (see Section 3.4.1). Most of these species have no other special conservation status as defined in Section 3.4.5. The project also could have more specific impacts to special-status birds, dependent on the behavior, seasonality, and habitat requirements of each species. These are discussed in more detail for each species or group of species, below.

The entire project site and surrounding area provides suitable nesting habitat for numerous resident and migratory bird species. Bird species diversity at the site is described in Section 4.3 and in the BRTR (Appendices C.6 and C.16). Many adult birds would flee from equipment during initial vegetation clearance for project construction. However, nestlings and eggs would be vulnerable to impacts during project construction, and are also protected by the MBTA and Fish and Game Code Sections 3503 and 3513. If initial site grading or brush removal were to occur during nesting season, then it likely would destroy bird nests, including eggs or nestling birds. One special-status species, the burrowing owl, is unlikely to flee the site during construction, due to its characteristic behavior of taking cover in burrows. Potential project impacts and an avoidance and mitigation strategy for burrowing owl are presented below.

Numerous species of birds can become entrapped in vertical or horizontal open pipes with diameters from 1 to 10 inches. Cavity-nesting species are particularly vulnerable. Examples of cavity-nesting birds protected under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code Sections 3503 and 3513 that have been have been found dead inside open pipes include Say's phoebes, owls, woodpeckers, kestrels, and ash-throated flycatchers (American Bird Conservancy 2011, Brean 2011). Birds may enter into pipes either in search of nest sites or food and become entrapped. Once inside the pipe, they cannot open their wings to fly, and cannot climb out on the smooth interior surface. Once entrapped, they die from starvation and dehydration.

Project impacts to nesting birds can be reduced or offset through implementation of Mitigation Measures VEG-1 through MM VEG-6 (Section 4.3.7) and MM WIL-1 (Wildlife Impact Avoidance and Minimization), below. These measures would require biological monitoring during construction activities, worker environmental awareness training, restoration of temporarily impacted areas, compensation for permanently impacted habitat at a minimum 1:1 ratio, minimization of impact areas, vehicle speed limits of 15 miles per hour, protection measures to

prevent wildlife entrapment in trenches, pipes, or other facilities or supplies, and control of fugitive dust. In addition, Mitigation Measure WIL-3 (Pre-Construction Nest Surveys and Impact Avoidance Measures for Migratory Birds) describes pre-construction surveys, buffer areas, and other requirements to avoid bird mortality. Some birds will likely nest in the project area during construction, even after initial grading and clearing. Depending on the species, birds may nest on the ground close to equipment; within the open metal framework of the panel support structures; on buildings, foundations, structures, or construction trailers; or on idle vehicles or construction equipment left overnight or during a long weekend. In areas where construction is phased (e.g., footings, or tower structures) birds may quickly use these features as nest sites. The species most likely to nest in the project area during construction are common ravens, house finches, and mourning doves, all of which are protected by the MBTA and Fish and Game Code Sections 3503 and 3513. Due to the high probability that birds may nest on site during construction, MM WIL-3 requires regular monitoring of the work area throughout the breeding season. In some cases, it may be necessary to reduce buffer areas or to remove or relocate a bird nest in coordination with the resource agencies to proceed safely with construction. These measures are expected to effectively minimize adverse impacts to nesting birds on the site and to offset habitat loss through the acquisition and management of offsite lands. Even with implementation of these measures, the project would result in an unavoidable residual net loss of habitat at the project site.

Infrastructure and construction equipment could cause collision hazards to birds during project construction. These construction phase hazards would be less important than similar collision hazards that could occur during the O&M phase. These potential impacts are discussed in Section 4.4.12.

Burrowing Owl. Burrowing owls have been observed on the site during winter and migratory seasons, but not during breeding season (Section 3.4). However, the habitat on the project site is suitable, and burrowing owls could occupy the site in low numbers in future breeding seasons. Potential direct project impacts to burrowing owls would be similar to those described for nesting birds, but construction activities also could destroy occupied burrows or cause the owls to abandon burrows during any season. If owls were present, construction during the breeding season could cause nest abandonment, or the incidental loss of fertile eggs or nestlings. Burrowing owls and their nests are protected under federal and State laws and regulations, including the MBTA and the California Fish and Game Code. These impacts can be mitigated in part through implementation of Mitigation Measures VEG-1 through MM VEG-6 (Section 4.3.7); and MM WIL-1 and MM WIL-3 summarized above and presented in full, below. These measures would require biological monitoring during construction activities, worker environmental awareness training, restoration of temporarily impacted areas, compensation for permanently impacted habitat at a minimum 1:1 ratio, minimization of impact areas, vehicle speed limits of 15 miles per hour, control of fugitive dust, preconstruction surveys for nesting birds, and buffers around active nests. However, because burrowing owls characteristically take cover in burrows, the additional Mitigation Measure WIL-4 (Burrowing Owl Impact Avoidance, Minimization, and Compensation Measures) is required to further minimize or offset potential impacts. This measure requires preconstruction surveys at any time of year, to account for breeding or wintering owls. Passive relocation (CDFG 2012) may be utilized for active burrows in any work area, outside of the breeding season. If needed, disturbance-free buffers would be established around any active burrows during the breeding season. If active burrowing owl burrows are

destroyed during construction (after passive relocation of the owls), habitat loss would be offset as described in MM VEG-6. These measures are expected to effectively avoid any take of burrowing owls by excluding them from the project area or if active nests are present, by avoiding disturbance in surrounding buffer areas. These measures also are expected to offset habitat loss, though there would be a residual net loss of habitat at the project site.

Golden Eagle. Golden eagles are protected under the federal Bald and Golden Eagle Protection Act (BGEPA) as well as the MBTA. The project site does not provide suitable golden eagle nesting habitat. However, the entire DHSP project area provides suitable foraging habitat, and is within 10 miles of known golden eagle nesting territories located in the Eagle Mountains, Coxcomb Mountains, and Chuckwalla Mountains. These territories comprise eight golden eagle nests that were inactive in 2010, and one nest where eagle activity was observed but no young were fledged in 2010 (BLM 2011b; see Section 3.4). Since preparation of the Draft EIS, the 10-mile radius surrounding the project area was re-surveyed for golden eagle nesting activity during spring 2012. Early nesting activity ("nest decoration") was observed at one nest, but there was no subsequent activity; no eggs or young were present in the nest, and the adult golden eagles did not remain at the site (L. F. LaPre 2012, personal communication). There have been no subsequent surveys for nesting activity. Human intrusions near golden eagle nest sites in other areas have resulted in nest abandonment; high nestling mortality when young go unattended due to altered behavior by the parent birds; premature fledging; and ejection of eggs or young from the nest (Pagel 2010). Under the BGEPA, nest abandonment or decreased golden eagle reproductive success caused by substantial interference with normal breeding, feeding, or sheltering behavior, would constitute "take." Golden eagles would be likely to forage on the solar facility site at any time of year, particularly during winter and migration seasons due to larger numbers of golden eagles in the region and their larger winter foraging ranges. Project construction would eliminate 1,300 acres of suitable foraging habitat from within the likely foraging ranges of known nesting territories in the surrounding mountains. During years when golden eagles nest in any of the territories surrounding the site, the project could affect their foraging habitat. This habitat loss may also affect golden eagle foraging during winter and migratory seasons, or may affect foraging by unmated golden eagles during the nesting season. The project area represents only about 0.6 percent potential foraging habitat within the presumed 10-mile foraging radius for any given territory, and much of the foraging habitat for local golden eagle territories is protected within Joshua Tree National Park (JTNP) or through other land use designations. However, the project would contribute to an ongoing cumulative regional loss of golden eagle foraging habitat, as described in Section 4.4.16). Impacts to golden eagle foraging habitat can be offset through Mitigation Measure VEG-6 (Section 4.3.7), which would require a minimum 1:1 compensation ratio for project impacts to vegetation and habitat, including suitable golden eagle foraging habitat.

Golden eagle nesting territories in the Eagle and Coxcomb mountains are within or adjacent to JTNP and adverse effects to these nesting territories would therefore affect JTNP biological resources. Project construction is not expected to cause substantial direct disturbance (e.g., noise, lighting, visual disturbance) to nest sites in the local nesting territories, due to their distance from the site. However, implementation of Mitigation Measure WIL-5 (Golden Eagle Pre-construction and Construction Phase Surveys) requires annual monitoring during nesting season, and requires the project owner to prepare and implement an adaptive management plan if golden eagles are found nesting in the area at any time during project construction. Additionally,

Mitigation Measure WIL-6 (Bird and Bat Conservation Strategy) would require the project owner to prepare and implement an overall strategy to avoid, minimize, or mitigate project impacts to birds and bats, including golden eagles, in consultation with the USFWS. The proposed mitigation measures are expected to effectively avoid any take of golden eagles and to offset habitat loss, though there would be a residual net loss of foraging habitat at the project site.

Infrastructure and construction equipment could cause collision or electrocution hazards to golden eagles and other birds during project construction. These construction phase hazards would be less important than similar collision and electrocution hazards that could occur during the O&M phase of the project, the gen-tie line, or alternatives. These potential impacts are discussed in Section 4.4.12.

Other Special-Status Raptors. Several other special-status raptors have been reported on or near the project site, or are likely to occur in the area, at least during limited times of year.

Several migratory raptor species, including Cooper's hawk, sharp-shinned hawk, ferruginous hawk, northern harrier, merlin, and Swainson's hawk, short-eared owl, and long-eared owl, spend winters in the southern California deserts or, (for Swainson's hawk) migrate through the region en route between breeding habitat to the north and wintering habitat farther south. Project construction would eliminate or degrade foraging habitat for these species throughout the project area. Impacts to raptor foraging habitat can be offset through Mitigation Measure VEG-6, which requires compensation for permanent impacts to vegetation at a minimum 1:1 ratio.

Prairie falcon has not been reported in the project area, but would be expected to nest in the surrounding mountains, including the mountains within JTNP, and to forage over the project site at any time of year, as described for golden eagle. Adverse effects to any nesting territories based within JTNP would affect JTNP biological resources. The project's potential impacts to prairie falcon nesting and foraging habitat would be similar to those described for golden eagle. Construction of the proposed project or its alternatives has minimal potential to affect prairie falcon nest sites, but does have the potential to eliminate foraging habitat within range of nesting territories. The prairie falcon is not Fully Protected under the California Fish and Game Code, but as a bird of prey, it is protected under the federal MBTA and the California Fish and Game Code Section 3503.5. The impact to foraging habitat can be offset through Mitigation Measure VEG-6, although there will still be a residual net loss of foraging habitat at the project site.

Infrastructure and construction equipment could cause collision or electrocution hazards to golden eagles and other birds during project construction. These construction phase hazards would be less important than similar collision and electrocution hazards that could occur during the O&M phase of the project, the gen-tie line, or alternatives. These potential impacts are discussed in Section 4.4.12.

Gila Woodpecker. Gila woodpecker was observed within the project area while setting up the winter point count locations, but was not observed during the subsequent 2011 winter or spring point counts. In spring 2012, all desert dry wash woodland habitat was surveyed to determine presence or absence of breeding Gila woodpeckers, but no further Gila woodpecker observations were recorded (see Appendix C.20). Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) vegetation on the site may provide marginally suitable Gila woodpecker nesting habitat (see Section 3.4), and there is a low possibility that it may nest on the site, or that the project site is near an occupied nesting territory. Gila woodpecker is a state-listed endangered species.

In addition, as a native bird, it is protected under the MBTA and California Fish and Game Code. Adverse project impacts to habitat can be offset through implementation of MM VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat), which requires compensation for impacts to Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) at a ratio of 3:1. Direct impacts to nesting Gila woodpeckers would be avoided through implementation of MM WIL-3. The proposed mitigation measures are expected to effectively avoid any take of Gila woodpecker and to offset habitat loss, though there would be a residual net loss of microphyll woodland habitat at the project site.

Special-Status Passerines. The desert vegetation and adjacent mountains provide foraging, cover, or breeding habitat for resident and migratory birds. In addition to the species described above, 7 special-status birds have been observed or have a moderate to high likelihood of occurring on the site: Lucy's warbler, Bendire's thrasher, scrub jay (Eagle Mountains population), Le Conte's thrasher, loggerhead shrike, Vaux's swift, and vermillion flycatcher (See Section 3.4). Three of these species, scrub jay, Lucy's warbler, and Vaux's swift, were seen during migration seasons and are unlikely to use the site except during brief flyover or stopover periods. Each of the other species may nest on site (see potential for occurrence in Table 3.4-2). Potential project impacts to these species would be the same as those described for nesting birds. These impacts can be mitigated through implementation of Mitigation Measures VEG-1 through MM VEG-6 (Section 4.3.7), MM WIL-1 (Wildlife Impact Avoidance and Minimization), and MM WIL-3 (Pre-Construction Nest Surveys and Impact Avoidance Measures for Migratory Birds). These measures would require biological monitoring during construction activities, worker environmental awareness training, restoration of temporarily impacted areas, compensation for permanently impacted habitat at a minimum 1:1 ratio, minimization of impact areas, vehicle speed limits of 15 miles per hour, control of fugitive dust, preconstruction surveys for nesting birds, and buffers around active nests. These measures are expected to effectively minimize adverse impacts to special-status birds on the site and to offset habitat loss through the acquisition and management of offsite lands. Even with implementation of these measures, the project would result in an unavoidable residual net loss of habitat at the project site.

Infrastructure and construction equipment could cause collision hazards to birds during project construction. These construction phase hazards would be less important than similar collision hazards that could occur during the O&M phase. These potential impacts are discussed in Section 4.4.12.

Special-Status Bats. Several special-status bats (pallid bat, western mastiff bat, California leaf-nosed bat, pocketed free-tailed bat, big free-tailed bat, and Townsend's big-eared bat) could use the project site for foraging, but no suitable roosting habitat is available on the site for these species. Project construction could adversely impact special-status bats through the elimination of desert shrubland foraging habitat, particularly the Blue Palo Verde–Desert Ironwood Woodland (Desert Dry Wash Woodland) habitat. During the project's construction phase, storage ponds and lighting would be likely to attract nocturnal insects and, in turn, bats; possibly including special-status bats. These attractants could lead to increased numbers of bats in the vicinity of structures or equipment, which could cause collision hazards. These potential impacts can be mitigated in part through implementation of Mitigation Measures VEG-1 through MM VEG-6 (Section 4.3.7) and Mitigation Measure WIL-6 (Bird and Bat Conservation Plan), which would require the project owner to prepare and implement an overall strategy to avoid, minimize, or mitigate project impacts to birds and bats in consultation with the USFWS. These measures are

expected to effectively minimize potential hazards to bats, including special-status species, and to offset habitat loss. Even with implementation of these measures, the project would result in an unavoidable residual net loss of habitat at the project site.

Palm Springs Round-Tailed Ground Squirrel. Project construction would eliminate marginally suitable habitat for Palm Springs round-tailed ground squirrel throughout the project site, but would not affect aeolian sands and mesquite hummocks that characterize its primary habitat. Direct effects of project construction would include the same types of effects as described for general wildlife (habitat loss, mortality, and disturbance by noise and lighting). Implementation of Mitigation Measures VEG-1 through MM VEG-6 (Section 4.3.7) and MM WIL-1 (Wildlife Impact Avoidance and Minimization) would minimize or offset these impacts. These measures would require biological monitoring during construction activities, moving special-status wildlife out of harm's way, worker environmental awareness training, restoration of temporarily impacted areas, compensation for permanently impacted habitat at a minimum 1:1 ratio, minimization of impact areas, vehicle speed limits of 15 miles per hour, and control of fugitive dust.

American Badger and Desert Kit Fox. Recently active desert kit fox burrows and inactive American badger burrows occur on the project site (Section 3.4). Although badgers were apparently absent during field surveys, a badger could construct a burrow and occupy the site prior to initiation of project construction. Potential direct impacts to American badger and desert kit fox include mechanical crushing of individuals or burrows by vehicles and construction equipment, noise, dust, and loss of habitat. The tortoise exclusion fence could entrap desert kit foxes or badgers in the project site and construction area if either species is on the site when the fence is built. Animals trapped within the fence would almost surely die from direct or indirect effects of project construction (e.g., vehicle strike, inability to find sufficient food or thermal cover). Implementation of Mitigation Measures VEG-1 through MM VEG-6 (Section 4.3.7) and MM WIL-1 (Wildlife Impact Avoidance and Minimization) would minimize or offset these impacts. These measures would require biological monitoring during construction activities, moving special-status wildlife out of harm's way, worker environmental awareness training, restoration of temporarily impacted areas, compensation for permanently impacted habitat at a minimum 1:1 ratio, minimization of impact areas, vehicle speed limits of 15 miles per hour, and control of fugitive dust. In addition, MM WIL-7 (Desert Kit Fox and American Badger Impact Avoidance) would require the project owner to passively relocate desert kit fox or American badgers found within the project area. Due to the recent outbreak of canine distemper virus in the local desert kit fox population, passive relocation planning must minimize or avoid any potential of worsening the outbreak, e.g., by causing diseased animals to spread the virus farther, or causing increased vulnerability to infection in healthy animals due to uncharacteristic wandering or increased physiological stress due to relocation. Relocation planning must also include measures to prevent desert kit foxes from returning to the project site after passive relocation (e.g., by burrowing beneath fences). MM WIL-7 would require the project owner to coordinate with CDFG to maximize efficacy of the passive relocation effort and to avoid take.

Nelson's Bighorn Sheep, Burro Deer, and Yuma Mountain Lion. The project site provides marginally suitable foraging habitat and potential movement habitat for Nelson's bighorn sheep and burro deer (their primary habitat areas are in the surrounding mountains). Given the potential presence of these species, the Yuma mountain lion may also use the solar facility site infrequently for foraging or for movement among surrounding mountain ranges. Loss of habitat on

the project site, and expected off-site impacts such as noise, lighting, and disturbance in surrounding habitat have the potential to disrupt animals from foraging or moving through the area, and could increase risk of mortality or injury by collision with vehicles on roadways. Potential impacts to foraging habitat would be relatively minor due to the location of the solar facility site, 1.5 to 1.7 miles from the toeslopes of the nearest mountains (Coxcomb Mountains to the northeast and Eagle Mountains to the west). These impacts would be further minimized or offset through implementation of Mitigation Measures VEG-1 through MM VEG-6 (Section 4.3.7) and MM WIL-1 (Wildlife Impact Avoidance and Minimization). These measures would require biological monitoring during construction activities, worker environmental awareness training, restoration of temporarily impacted areas, compensation for permanently impacted habitat at a minimum 1:1 ratio, minimization of impact areas, vehicle speed limits of 15 miles per hour, and control of fugitive dust. Another important potential impact to all three species is the reduced opportunity for movement among isolated desert mountain ranges where their primary habitat is found. One potential result of this reduced movement opportunity is the decline or extirpation of local populations in individual mountain ranges, perhaps due to stochastic events such as a series of poor rainfall years which may cause reproductive failure. Without immigration from another location, declining local populations may become extinct. Impacts to wildlife movement are discussed further, below.

Wildlife Movement. The DHSP solar facility site is immediately south of the recently approved Desert Sunlight site. At the time of commencement of analysis for this EIS in September 2011, only a small portion of the Desert Sunlight site had been disturbed; therefore, the effects of the DHSP solar facility on wildlife movement are analyzed here without the presumption that the remainder of Desert Sunlight would be built. Please see the Cumulative Impacts section, below, for an analysis of the cumulative impacts of DHSP, Desert Sunlight, and other projects to wildlife movement.

The proposed DHSP solar facility site is located roughly midway between the three mountain ranges that surround the upper Chuckwalla Valley, including the Eagle Mountains and Coxcomb Mountains within JTNP. Therefore, the project's effects to wildlife movement and biological connectivity within the upper Chuckwalla Valley could affect biological resources within JTNP. The site presently contributes to potential wildlife movement routes through the Valley for many species, such as shrubland birds, and ground-dwelling small mammals and reptiles, as well as burro deer and mountain lion, particularly for southwest to northeast movement between the Chuckwalla DWMA (west of the site) and the Coxcomb Mountains. This contribution to movement habitat is limited, however, by existing land use patterns south and east of the proposed solar facility site, and by the DSSF project to the north (see Cumulative Impacts analysis, below). Much of the open space to the south and east of the DHSP solar facility site includes large tracts of land used for agriculture (jojoba, date palms, etc.). Some of these fields are actively farmed, while others are not. However, degraded habitat, fences, and other alterations limit their function for wildlife movement through the areas within 3 miles of the southern boundary of the solar facility site. To the east of the project site, a small (0.2 to 0.5 mile wide) corridor of open space exists between the site boundary and another large tract of agricultural land. Project construction would further limit connectivity by eliminating movement opportunities across the site for most wildlife species, but the actual consequence to wildlife movement would be minor due to the land uses and movement barriers described above. Intermountain movements are more likely to occur in the less disturbed northern reaches of the Chuckwalla

Valley. The limited wildlife connectivity value of the project site is also explained in Section 2.17, which assesses a proposal to specify or designate a wildlife movement route through the abovementioned small corridor to the east of the proposed solar facility site.

Suitable movement habitat on open space directly north of the DHSP site is within the Desert Sunlight site, which is currently under construction.

The most important wildlife movement habitat in the upper Chuckwalla Valley is to the west (in the Chuckwalla DWMA and CHU) and to the north of the Desert Sunlight site. To the west of the solar facility site, wildlife movement is generally unencumbered through the open space areas extending to JTNP, with the exception of Eagle Mountain and Kaiser Roads, and the inactive Kaiser rail line. To the north, there is extensive undisturbed upper bajada habitat between the northern extent of the DSSF site and the bases of the mountain ranges. These lands contain relatively uninterrupted contiguous open space and undisturbed habitat, and are valuable for wildlife habitat connectivity among the surrounding mountain ranges. However, the Colorado River Aqueduct limits terrestrial wildlife movement to the north to a few "siphon" sites (Section 3.4.6).

The upper Chuckwalla Valley is considered an important habitat linkage, characterized by diffuse gene flow between the Mojave and Colorado portions of the desert tortoise's range (USFWS 2011b). There are only a few such habitat linkage areas providing connectivity among desert tortoise populations within conservation areas (e.g., DWMAs) in the Mojave and Colorado portions of their geographic range. The existing pattern of public and private land ownership, and potential for future development in the I-10 corridor, may threaten the viability of these linkages. The USFWS identifies the upper Chuckwalla Valley and upper Pinto Wash, especially along the upper bajadas of the Eagle and Coxcomb Mountains, as the most viable remaining linkage in this region. Therefore, the USFWS identifies conservation of the smaller-scale habitat accessibility within remaining portions of the habitat linkage as essential; these include (1) culverts and bridges beneath I-10; and (2) minimizing the future loss of desert tortoise habitat now providing habitat connections to these crossings. Therefore, the USFWS identified specific conservation measures in its Biological Opinion for the Desert Sunlight project to maintain habitat connectivity in this area. One of these measures specifically targets compensation land acquisition within the BLM/private landownership checkerboard along the I-10 corridor between Cactus City and Desert Center. An additional conservation measure entails planning and effectiveness monitoring for desert tortoise habitat linkage north of the Desert Sunlight site, in the vicinity of the Colorado River Aqueduct.

Mitigation Measure VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat) would offset project impacts to wildlife movement in the upper Chuckwalla Valley. MM VEG-6 incorporates the requirement that "The primary focus area for acquiring parcels to maintain/improve connectivity will be along the I-10 corridor between Desert Center and Cactus City with a priority on parcels that connect conserved lands on either side of the I-10 through large culverts or bridges; the habitat compensation ratio for mitigation lands along the I-10 corridor shall be 1:1 for each acre of total long-term and permanent disturbance." Because the project site is modeled as low habitat value (Nussear et al. 2009), has low density of tortoises and their sign (Section 3.4), much of the local habitat has been disturbed and fragmented, and the most important desert tortoise movement habitat in the area lies west of the project footprint, project specific effects of the DHSP project would not substantially alter desert tortoise con-

nectivity in this region. Additional conclusions regarding wildlife movement are deferred to the cumulative impacts analysis.

Wildlife Management Areas. The solar facility site is not within either the Chuckwalla DWMA or Chuckwalla CHU. The western edge of the southwestern parcel is adjacent to the Chuckwalla DWMA, and 46 acres of the Palen-Ford WHMA are included within the northern portion of the northeastern parcel (see Table 4.4-1 and Figure 3.4-1 in Appendix A). The 46 acres of the WHMA that are within the proposed solar facility site are isolated from the remainder of the WHMA and key WHMA resources, including the dunes and playa system to the east, by the intervening DSSF project now under construction (see Figures 3.1-1 and 3.4-1). The functionality of this portion of the WHMA is thus reduced compared to the WHMA as a whole. As a result, the effects of the DHSP on this portion of the WHMA would be diminished by its configuration, but would not be eliminated. Construction activities have the potential to directly impact species utilizing these special management areas as a result of habitat loss (WHMA only), noise, night lighting, and dust. Mitigation measures for these impacts would be as described above. Implementation of these measures would reduce direct impacts to adjacent wildlife management areas and the WHMA within the site.

Indirect Effects

In addition to direct impacts, project construction could have several indirect impacts to wildlife and its habitat, including introduction or spread of invasive weeds, depletion of groundwater and subsequent effects to groundwater-dependent vegetation and habitat, effects to displaced wildlife (establishing new home ranges, competition for resources, etc.), and increased predation due to predator "subsidies" (e.g., water storage ponds, litter) provided during construction. The indirect effects to wildlife of invasive weeds and groundwater depletion, and mitigation of those effects, are as described in Section 4.3. Herbicide application to mitigate potential impacts of invasive weeds may have secondary effects on wildlife, described below.

Herbicide Application. The adverse impacts of invasive weeds would be minimized by Mitigation Measure VEG-9 (Prepare and Implement an Integrated Weed Management Plan), which would require the project owner to monitor weed occurrence throughout the project area, and to control substantial weed infestations using herbicides or mechanical means to remove weeds. Herbicides may pose risks to terrestrial or aquatic animal species. Herbicides that persist on-site could adversely affect animals that feed on target plants or are exposed to the herbicides (e.g., by digging or rolling in treated soil). Accidental spills and herbicide drift from treatment areas could reach non-target areas on public or private lands near treatment areas. The project's Draft Integrated Weed Management Plan (IWMP; see Appendix C.10) includes specific measures to avoid application at project perimeters, in the vicinity of native vegetation or habitat, and to avoid overspray or spillage in any areas. In addition, the Draft IWMP describes proposed usage and formulations of herbicides at the DHSP. Use of herbicides would be in accordance with the measures and standard operating procedures in the BLM's Herbicide PFEIS. As described in Chapter 1, Section 1.9.1, the DHSP EIS is tiered to the Herbicide PFEIS. Complying with the measures and standard operating procedures in the Herbicide PFEIS, MM PHS-9, as well as other limitations described in the Draft IWMP, would avoid potential adverse effects of herbicides to wildlife. Risks from proposed herbicides would be similar to, or less than, risks from currently-available herbicides. Buffer zones would be used to reduce the risks from herbicide treatments. The restrictions on herbicide use and application described in the

Integrated Weed Management Plan are expected to effectively avoid adverse impacts of herbicide application to wildlife.

Wildlife Displacement. Construction activities would cause most mobile vertebrate wildlife to leave, or attempt to leave the site. Animals dispersing from the site would be subject to further adverse effects, potentially including mortality. They would be at increased risk of predation and possible vehicle collisions as they flush from cover during site clearing. After leaving their home territories, displaced animals may be unable to find suitable food or cover in new, unfamiliar areas. They may attempt to return to their home ranges, possibly resulting in "fence-walking" and consequent exposure to predation or other effects. If they find food and other resources, these may be within the occupied territory of another individual of the same or similar species, resulting in competition for resources. These adverse displacement effects would apply to common wildlife species and to special-status species, including desert tortoises, which would be translocated from the site if found during preconstruction surveys. Adverse impacts of wildlife displacement are an unavoidable residual impact of project construction.

Increased Predation. Project construction activities could provide resources in the form of trash, litter, or water, which attract and subsidize unnaturally high numbers of predators such as common ravens, coyotes, and feral dogs. This influx of predators could cause unnaturally high predation pressure on desert tortoises and other wildlife species in the vicinity. Predation by ravens on juvenile desert tortoises has been researched extensively. Common raven populations in the California desert have increased in response to expanding human use of the desert. The current level of raven predation on juvenile desert tortoises is considered an unnatural occurrence (USFWS 2011a). Ravens and coyotes habituate to human activities and are subsidized by food (trash, road killed animals), water (irrigation or dust control overspray), and (for ravens) new perching, roosting, and nesting sites (transmission line structures and other structures) that are introduced or augmented by human encroachment. Feral dogs also have emerged as major predators of the tortoise. Dogs may range several miles into the desert and have been found digging up and killing desert tortoises (USFWS 2011a).

There are numerous anthropogenic (human-caused) subsidies for ravens and other predators already present in the area. Thus, tortoises may already be subject to elevated predation. Additional loss of juvenile tortoises due to additional raven subsidies could have a long-term effect on the tortoise population by reducing juvenile tortoise survivorship (Boarman et al. 2006; Boarman 2003). The population-level consequences of this effect may not be apparent for years because tortoises do not typically reach sexual maturity until 15 to 20 years of age. Due to the solar facility site's proximity to JTNP, the project's predator subsidy effects could extend to desert tortoise and other wildlife populations within the Park.

The project's potential for indirect impacts to increased predation on native wildlife, including desert tortoises, can be mitigated in part through implementation of Mitigation Measures VEG-1 (Assign a Designated Biologist and Biological Monitors), MM VEG-2 (Conduct Biological Monitoring and Reporting during Project Construction, Operations, and Decommissioning), MM VEG-3 (Prepare and Implement a Worker Environmental Awareness Program), and MM WIL-1 (Wildlife Impact Avoidance and Minimization). In addition, MM WIL-8 (Raven Monitoring, Management, and Control Plan) would require management of all potential predator subsidies, monitoring of raven presence and abundance, implementation of specific control measures as needed, and contribution to the region-wide Raven Management Program. These measures are

expected to effectively minimize potential for project-related increased predation on native species.

Operation and Maintenance

O&M activities of Alternative 4 could directly and indirectly affect wildlife and wildlife habitat on site due to long-term habitat alteration by the solar panels and other facilities, management of vegetation on-site for O&M, and ongoing potential to introduce new weed species or facilitate the spread of existing species.

Direct Effects

On-Site Habitat. Project vegetation management during O&M would consist of mowing, weeding, or other vegetation control for compatibility with facility operations. In addition, altered habitat (particularly shade beneath the solar panels) will alter existing shrublands and wildlife habitat suitability. Overall impacts of these O&M procedures would prevent recovery of natural wildlife habitat conditions within the site throughout the life of the project. Due to security and desert tortoise exclusion fences, as well as degraded habitat conditions throughout the site, the project site would remain generally unsuitable for many wildlife species, including special-status species addressed previously, throughout the life of the project. These long-term impacts to habitat can be reduced through implementation of Mitigation Measures VEG-1 through MM VEG-6, which would require biological monitoring during ground-disturbing activities, moving special-status wildlife out of harm's way, worker environmental awareness training, restoration of temporarily impacted areas, and compensation for permanently impacted habitat at a minimum 1:1 ratio (Section 4.3.7).

Noise and Lighting. Some birds and other small wildlife species would re-occupy the solar facility site once construction activities are completed, where ongoing O&M noise and lighting may affect them. Noise and lighting may also affect wildlife in the nearby off-site habitat. These effects would be qualitatively similar to the description of construction phase effects of noise and lighting, but would be of lesser magnitude. Mitigation Measure WIL-1 (Wildlife Impact Avoidance and Minimization) would minimize these impacts.

Evaporation Pond. The proposed evaporation pond could affect wildlife by posing a drowning hazard; a water subsidy for predators; salt encrustations, which can interfere with flight or other activity; or salt toxicosis (poisoning). Terrestrial wildlife exposure to the evaporation ponds would be limited by the perimeter exclusion fencing, and any animals that could encounter the ponds would likely be those that remain within the fenceline after the fence is erected at the start of construction activities. Birds could remain vulnerable to these hazards. Mitigation Measure WIL-1 requires covering the evaporation pond to prevent these impacts.

If the evaporation pond dries completely at times, residual salts could become airborne and cause dust or health impacts to wildlife in surrounding habitat. Mitigation Measure WIL-1 would minimize this effect by ensuring that salt sediment is promptly removed at regular intervals from the evaporation pond.

Solar Panel Light, Glare, and Collision Risk. Large-scale solar facilities present a relatively new and un-researched risk for bird collisions. Studies conducted at the Solar One facility, a central receiver solar power plant near Daggett, California, indicated that bird mortality consisted predominantly of collisions with mirrors (McCrary et al 1986). However, photovoltaic solar

panels are designed to absorb, rather than reflect, light. While concentrating solar power systems are designed to reflect up to 90 percent of incoming sunlight, the glare and reflectance from PV panels is much lower; as little as two percent of direct and indirect sunlight is reflected (FAA Solar Guide Section 3.1.2, 2012). Nonetheless, glare is associated with the proposed technology (see Appendix G-5, which shows a time-lapse visual simulation of the project and its minimal glare effects). To date, little is known regarding the avian response to reflection or glare from PV solar technology; however, it is likely that glare will affect birds to some degree because the panels would reflect light and images, and might be mistaken for open sky or water. Light reflecting from photovoltaic panels could cause an increase in glare and Polarized Light Pollution (PLP). According to Horvath et al. (2009), PLP caused by anthropogenic structures can alter the ability of wildlife to seek out suitable habitat, detect or elude predators, or effectively navigate using natural polarized light patterns, ultimately affecting dispersal and reproduction. Available information is not sufficient to allow quantification of the potential hazard. Mitigation Measure WIL-6 (Bird and Bat Conservation Plan) requires an evaluation of potential collisions with solar panels, or other effects of polarized light on birds and bats, and implementation of adaptive management measures as appropriate to address those potential impacts. This measure is expected to mitigate this potential risk to the extent feasible, but an unknown residual risk to birds may remain, even with implementation of the Bird and Bat Conservation Plan.

Collisions and Electrocutions. Solar panels and project infrastructure, such as overhead transmission and distribution lines, could cause collision or electrocution hazards to birds or bats during project O&M. These hazards would be similar to those described below under O&M phase effects of gen-tie line Alternative B, and would be mitigated to the extent feasible through Mitigation Measure WIL-6 (Bird and Bat Conservation Plan) which requires an evaluation of potential collisions and conservation measures to minimize risk.

Nesting Birds. Some species of birds will likely nest in the project area during facility O&M. The potential for impacts to nesting birds during O&M would be similar to those described during the construction phase for birds that may nest on the ground close to equipment, within the open metal framework of the panel structures, on buildings or other structures, or on idle construction equipment. The nesting behaviors of some native birds increases the likelihood that project O&M would require the removal or relocation of active nests in order to safely operate the facility. Mitigation Measure WIL-6 (Bird and Bat Conservation Plan) requires an evaluation of potential project hazards to birds and bats, and implementation of adaptive management measures as appropriate to address them. This measure is expected to mitigate this potential risk to the extent feasible, but an unknown residual risk to birds may remain, even with implementation of the Bird and Bat Conservation Plan.

Indirect Effects

The indirect effects of project O&M to wildlife and wildlife habitat include the introduction or spread of invasive weeds, depletion of groundwater and subsequent effects to groundwater-dependent vegetation and habitat, alteration of ephemeral surface water flows, and increased predation due to predator "subsidies." The indirect effects to wildlife of invasive weeds and groundwater depletion, and mitigation of those effects, are as described in Section 4.3. The indirect effects of predator subsidies during project O&M, and mitigation of those effects would be as described under indirect effects of construction.

Decommissioning

The proposed methods of decommissioning of the solar facility are summarized in Chapter 2. The expected operational lifetime of the project is 30 years; however, the actual life of the project could be longer or shorter. When permanent closure is appropriate, a decommissioning plan will be prepared and submitted to the BLM for review and approval. Closure strategies may include temporary "mothballing", removing old facilities and upgrading to newer solar technology, or complete removal of equipment and restoration of the land to BLM-approved specifications. Fully decommissioning the site would involve removal and demolition of above-ground structures, dismantling and removing concrete structures to a depth of 3 feet, removal of underground utilities within 3 feet of final grade, and excavation and removal of contaminated soils, if applicable (see Sections 2.4.6 and 2.9.4).

Impacts to wildlife resources would vary, according to the decommissioning strategy and the intended re-use of the site.

Direct Effects

Facilities removal during decommissioning would be expected to take place within the approved project footprint, and would not be expected to remove or degrade wildlife habitat, except through the effects of noise, lighting, or similar direct off-site impacts, as discussed under direct effects of construction. These impacts can be reduced through implementation of Mitigation Measures VEG-1 through MM VEG-5 (Section 4.3.7). Additionally, MM WIL-1 (Wildlife Impact Avoidance and Minimization), MM WIL-3 (Pre-Construction Nest Surveys and Impact Avoidance Measures for Migratory and Nesting Birds), MM WIL-6 (Bird and Bat Conservation Strategy), and MM WIL-8 (Raven Monitoring, Management, and Control Plan) would mitigate these impacts throughout the decommissioning phase.

If the ultimate re-use of the solar facility site will be to return it to natural open space, then the expected recontouring and replanting during decommissioning would have a net benefit to wildlife resources. This potential beneficial impact cannot be evaluated at this time, pending the final re-use decision and the details of the decommissioning plan.

Indirect Effects

The indirect effects of project decommissioning to wildlife and wildlife habitat include the introduction or spread of invasive weeds, depletion of groundwater and subsequent effects to groundwater-dependent vegetation and habitat, and increased predation due to predator "subsidies" provided during construction. The indirect effects to wildlife of invasive weeds and groundwater depletion, and mitigation of those effects, are as described in Section 4.3. The indirect effects of predator subsidies during project decommissioning, and mitigation of those effects would be as described under indirect effects of construction.

Mitigation Measures

MM VEG-1 Assign a Designated Biologist and Biological Monitors. (Text provided in Section 4.3, Biological Resources – Vegetation).

MM VEG-2 **Conduct Biological Monitoring and Reporting during Project Construction, Operations, and Decommissioning.** (Text provided in Section 4.3, Biological Resources – Vegetation).

MM VEG-3 **Prepare and Implement a Worker Environmental Awareness Program (WEAP).** (Text provided in Section 4.3, Biological Resources – Vegetation).

MM VEG-4 **Minimize Construction-Related Impacts.** (Text provided in Section 4.3, Biological Resources – Vegetation).

MM VEG-5 **Prepare and Implement a Vegetation Resources Management Plan.** (Text provided in Section 4.3, Biological Resources – Vegetation).

MM VEG-6 **Provide Off-Site Compensation for Impacts to Vegetation and Habitat.** (Text provided in Section 4.3, Biological Resources – Vegetation).

MM VEG-9 **Prepare and Implement an Integrated Weed Management Plan.** (Text provided in Section 4.3, Biological Resources – Vegetation).

MM WIL-1 **Wildlife Impact Avoidance and Minimization.** The project owner shall undertake the following measures during the construction, O&M, and decommissioning phases (as applicable) of the project and related facilities in a manner to avoid or minimize impacts to biological resources. Implementation of all measures shall be subject to review and approval by the BLM, Riverside County, and the Resource Agencies (CDFG and USFWS).

1. **Limit Disturbance Areas and Perimeter Fencing.** The boundaries of all areas to be disturbed (including staging areas, access roads, and sites for temporary placement of spoils) shall be delineated with stakes and flagging prior to disturbance, in consultation with the Designated Biologist. Spoils and topsoil shall be stockpiled in areas already disturbed or to be disturbed by construction, so that stockpile sites do not add to total disturbance footprint. All disturbances, project vehicles, and equipment shall be confined to the flagged areas. Parking areas, staging and disposal site locations shall similarly be located in areas without native vegetation or special-status species habitat.

2. **Minimize Road Impacts.** New and existing roads, road widening, or other road improvements shall not extend beyond the flagged impact area. All vehicles passing or turning around would do so within the flagged impact area or in previously disturbed areas. Where new access is required, the route shall be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.

3. **Minimize Traffic Impacts.** Vehicular traffic shall be confined to existing designated routes of travel to and from the project site, and cross-country vehicle and equipment use outside designated work areas shall be prohibited. The speed limit shall not exceed 15 miles per hour within any part of the project area, maintenance roads for linear facilities, or unpaved access roads to the project site where desert tortoise clearance surveys and translocations have not been completed.

4. **Monitor During All Soil or Vegetation Disturbance.** Due to the possibility that desert tortoises, especially juveniles, may be found on the site after desert tortoise clearance surveys are completed and exclusion fencing is installed, the Designated Biologist or Biological Monitor shall be present at the site during all project activities that have potential to disturb soil, vegetation, or wildlife. The Designated Biologist or Biological Monitor shall walk immediately ahead of equipment during brushing and grading activities. Any ground-disturbing activities occurring prior to construction site mobilization (e.g., for geotechnical borings or hazardous waste evaluations) shall be monitored by a Designated Biologist or Biological Monitor. During all monitoring activities, the Designated Biologist or Biological Monitor will, to the extent practicable, actively or passively relocate wildlife out of harm's way, where consistent with all adopted mitigation measures and other project requirements.

5. **Minimize Impacts of Transmission/Pipeline Alignments, Roads, and Staging Areas.** Staging areas, materials laydown areas, and other ancillary or temporary disturbance areas shall be restricted to areas where desert tortoise clearance surveys have been completed and that have been enclosed within desert tortoise exclusion fencing. For transmission line construction or other activities outside of the fenced solar generator site, access roads, pulling sites and storage and parking areas shall be designed, installed, and maintained with the goal of minimizing impacts to native plant communities and sensitive biological resources. The Designated Biologist or Biological Monitor shall evaluate potential for special-status plants or wildlife at every potential disturbance site along the lengths of the gen-tie line prior to any construction-related disturbance, including access improvements. Specifically, site selection of any area to be permanently or temporarily disturbed for gen-tie line construction shall avoid any desert wash, desert microphyll woodland species (blue palo verde or desert ironwood), and any aeolian sand habitat wherever feasible. Where these sites cannot feasibly be avoided, the Designated Biologist shall outline site-specific requirements to minimize impacts to habitat and wildlife. These requirements shall include, but will not be limited to, pre-construction clearance surveys, exclusion fencing (e.g., for desert tortoise or Mojave fringe-toed lizard), on-site monitoring, and post-construction remediation.

6. **Implement APLIC Guidelines.** Transmission lines and all electrical components shall be designed, installed, and maintained in accordance with the Avian Power Line Interaction Committee's (APLIC's) Suggested Practices for Avian Protection on Power Lines (APLIC 2006) and Mitigating Bird Collisions with Power Lines (APLIC 1994) to minimize the likelihood of large bird electrocutions and collisions.

7. **Avoid Use of Toxic Substances.** Soil bonding and weighting agents used on unpaved surfaces shall be non-toxic to wildlife and plants.

8. **Minimize Lighting Impacts.** Facility lighting shall be designed, installed, and maintained to prevent side casting of light towards surrounding wildlife habitat. To minimize risk of avian collisions with project features, only flash-

ing or strobe lights shall be installed on features requiring safety lighting per FAA requirements.

9. **Minimize Noise Impacts.** To minimize disturbance to wildlife nesting or breeding activities in surrounding habitat, loud construction activities (e.g., pile driving) shall be avoided to the extent feasible from February 1 to August 31. Loud construction activities may be permitted from February 1 to August 31 only according to the provisions of the Nesting Bird Management Plan described in MM WIL-3.

10. **Avoid Vehicle Impacts to Wildlife.** Vehicle parking and storage shall be permitted only within the area enclosed by desert tortoise exclusion fencing to the extent feasible. No vehicles or construction equipment shall be moved prior to an inspection of the ground beneath the vehicle for the presence of desert tortoise or other wildlife. If a desert tortoise is observed, it shall be left to move on its own. If it does not move within 15 minutes, a Designated Biologist or Biological Monitor under the Designated Biologist's direct supervision may remove and relocate the animal to a safe location if temperatures are within the range described in the *Desert Tortoise Field Manual* (USFWS 2009: http://www.fws.gov/ventura/species_information/protocols_guidelines/) and in accordance with the Biological Opinion for the project. In order to minimize road strikes for all wildlife species, all access roads outside of the fenced project footprint shall be delineated with temporary desert tortoise exclusion fencing on either side of the access road, unless otherwise authorized by the BLM, Riverside County, USFWS, and CDFG. This protocol to avoid vehicle impacts to wildlife, including desert tortoises, shall be emphasized in the WEAP training (MM VEG-3).

11. **Avoid Wildlife Pitfalls:**

    a. **Backfill Trenches.** At the end of each work day, the Designated Biologist shall ensure that all potential wildlife pitfalls (trenches, bores, temporary detention basins, and other excavations) have been backfilled. If backfilling is not feasible, all trenches, bores, temporary detention basins, and other excavations shall be sloped at a 3:1 ratio at the ends to provide wildlife escape ramps, or covered completely to prevent wildlife access, or fully enclosed with desert tortoise-exclusion fencing. All potential pitfalls (trenches, bores, temporary detention basins, storage ponds, and other excavations) outside the fenced areas shall be inspected periodically, but no less than three times, throughout the day and at the end of each workday by the Designated Biologist or a Biological Monitor. Within the fenced area, potential pitfalls, including storage ponds, shall be inspected daily. Should a desert tortoise or other wildlife become trapped, the Designated Biologist or Biological Monitor shall remove and, if applicable, relocate it as described in the Desert Tortoise Translocation Plan. Any wildlife encountered shall be allowed to leave the area unharmed.

    b. **Avoid Entrapment of Desert Tortoise.** Any construction pipe, culvert, or similar structure with a diameter greater than 3 inches, stored less than

8 inches aboveground for one or more nights, shall be inspected for tortoises before the material is moved, buried, or capped. As an alternative, all such structures may be capped before being stored outside the fenced area, or placed on pipe racks.

c. **Avoid Entrapment of Nesting or Migratory Birds.** All pipes or other construction materials or supplies will be covered or capped in storage or laydown areas and at the end of each work day in the solar field or gen-tie line during construction, O&M, and decommissioning phases. No pipes or tubing of sizes or inside diameters ranging from 1 to 10 inches will be left open either temporarily or permanently.

12. **Minimize Standing Water.** Water applied to dirt roads and construction areas (trenches or spoil piles) for dust abatement shall use the minimal amount needed to meet safety and air quality standards in an effort to prevent the formation of puddles, which could attract desert tortoises and common ravens to construction sites. A Biological Monitor shall patrol these areas to ensure water does not puddle. Appropriate actions to minimize standing water shall be implemented by the project owner or by the Biological Monitor in coordination with BLM.

13. **Injured Wildlife.** Any injured or dead wildlife encountered during project-related activities (constriction, O&M, and decommissioning) shall be reported to the Designated Biologist or Biological Monitor(s) immediately. The Designated Biologist or Biological Monitor will contact CDFG or a CDFG-approved veterinary facility immediately to report the observation and determine the best course of action. For special-status species, the Designated Biologist shall notify the BLM, USFWS, and/or CDFG, as appropriate, within 24 hours of the discovery.

14. **Dispose of Road-Killed Animals.** Road-killed animals or other carcasses detected on roads near the project area shall be picked up immediately and delivered to the Designated Biologist or Biological Monitor. For all road-killed animals, the Designated Biologist shall retain the carcass in a freezer on site and contact CDFG within 30 working days for guidance on disposal, storage, or curation. For any road-killed special-status species, the Biological Monitor shall contact CDFG and USFWS (for golden eagle or federally-listed species, including desert tortoise) within one working day of receipt of the carcass for guidance on disposal, storage, or curation of the carcass. The Biological Monitor shall report the special-status species observations as described in MM VEG-1.

15. **Minimize Spills of Hazardous Materials.** All vehicles and equipment shall be maintained in proper working condition to minimize the potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The Designated Biologist shall be informed of any hazardous spills immediately as directed in the project Hazardous Materials Management Plan. Hazardous spills shall be immediately cleaned up and the contaminated soil properly disposed of at a licensed facility. Fueling and

servicing of construction equipment shall take place only at a designated area approved by the Designated Biologist. Service/maintenance vehicles shall carry a bucket and pads to absorb leaks or spills.

16. **Worker Guidelines.** All trash and food-related waste shall be placed in self-closing raven-proof containers and removed regularly from the site to prevent overflow. Workers shall not feed wildlife or bring pets to the project site, including the logistics, parking, and other ancillary areas. Except for law enforcement personnel, no workers or visitors to the site shall bring firearms or weapons. Vehicular traffic shall be confined to existing routes of travel to and from the project site, and cross-country vehicle and equipment use outside designated work areas shall be prohibited. The speed limit when traveling on dirt access routes within desert tortoise habitat shall not exceed 15 miles per hour.

17. **Implement Erosion Control Measures.** Standard erosion control measures shall be implemented for all phases of construction and O&M to prevent any sediment run-off from exposed slopes from entering state-jurisdictional stream-beds within or outside the project site or work areas along the gen-tie line. Sediment and other flow-restricting materials shall be moved to a location where they shall not be washed back into the stream. All disturbed soils and roads within the project site shall be stabilized to reduce erosion potential, both during and following construction, except that soil stabilizer use may be limited in portions of roads crossing washes or stream channels consistent with applicable water quality requirements.

18. **Remove Unused Material and Equipment.** All unused material and equipment, including soil and rock piles, will be removed upon completion of any activities located outside the permanently fenced area.

19. **Control and Regulate Fugitive Dust.** To reduce the potential for the transmission of fugitive dust, the project owner shall implement dust control measures as described in mitigation measures defined in the Air Quality section. In addition, reverse osmosis brine or sediment shall be promptly removed at regular intervals and disposed at an approved waste facility. A log documenting all brine or sediment removal shall be kept at the Operations & Maintenance facility at all times.

20. **Cover Evaporation Ponds.** Prior to any discharge in the evaporation ponds, the project owner shall cover the ponds with netting designed to exclude birds and other wildlife from drinking or landing on the pond surfaces. Mesh shall be 2 cm square or smaller, shall be installed to prevent sagging, and shall be a minimum of 5 feet above the surface of the water. Netting with another mesh size or a smaller distance above the water may be installed if approved by the BLM in consultation with CDFG and USFWS. The netted ponds shall be monitored regularly to verify that the netting is intact; fulfilling its function in excluding birds and other wildlife; and does not pose an entanglement threat to wildlife. Visual deterrents (e.g., flagging, reflecting tape, or hawk-shaped

kites) shall also be used in addition to netting. As appropriate, these measures shall also be applied to construction water ponds.

MM WIL-2 **Desert Tortoise Clearance Surveys, Exclusion Fencing, and Translocation.** The project owner shall avoid and minimize impacts to desert tortoises on the project site, by (1) fencing the project site to prevent tortoises from entering it during construction, O&M, or decommissioning; (2) removing all tortoises from the site prior to initiating construction; and (3) relocating or translocating tortoises to an appropriate off-site location, to be identified in a Translocation Plan. Methods for clearance surveys, fence specification and installation, tortoise handling, artificial burrow construction, egg handling, and other procedures shall be consistent with those described in the USFWS (2009) *Desert Tortoise Field Manual* (http://www.fws.gov/ventura/species_information/protocols_guidelines) or more current guidance provided by CDFG and USFWS. The project owner shall also implement all terms and conditions described in the Biological Opinion for the project, to be prepared by USFWS and all terms and conditions in an Incidental Take Permit from CDFG. Applicable conditions and requirements include, but are not limited to, the following:

1. **Desert Tortoise Translocation Plan.** The project owner shall contract a qualified biologist to prepare and implement a Desert Tortoise Translocation Plan in conformance with standards and guidelines described in Translocation of Desert Tortoises (Mojave Population) From Project Sites: Plan Development Guidance (USFWS 2010b) or more current guidance or recommendations as available from CDFG and/or USFWS, and meets the approval of the BLM, Riverside County, USFWS, and CDFG. The Plan will be provided to the Joshua Tree National Park (JTNP) for review and comment. The goal of the Plan shall be to safely exclude desert tortoises from within the project area, translocate them to appropriate locations off site, and minimize stress and potential for disease transmission. For tortoises that may be found along the gen-tie line, the Plan's goal will be to avoid impacts through construction monitoring, allowing the tortoise to leave the work area, moving it out of harm's way if required and as permitted by the Biological Opinion, and avoiding disturbance to tortoise burrows through re-siting work sites and structures. The Plan shall include all protocols for handling desert tortoises, evaluating tortoise health, translocation locations and procedures, monitoring methods for translocated tortoises, reporting, and contingency planning (e.g., handling an injured or diseased tortoise). In addition, as an alternative to translocation, the Plan will identify a strategy to remove desert tortoises on the project site from the wild and place them permanently in facilities approved by USFWS and CDFG, to be fully funded by the project owner. Suitable care or holding facilities for desert tortoises, and their capacity to accommodate desert tortoises, shall be identified. The BLM and Riverside County will not accepted the plan as "final" until it has been reviewed and approved by the USFWS and CDFG. Any modifications to the approved final Plan shall be made only with written approval by the BLM, Riverside County, USFWS, and CDFG. A copy of the approved plan will be provided to JTNP.

2. **Handling of Desert Tortoises.** Any desert tortoise located during any phase of the project shall be handled only by the Designated Biologist or Authorized Biological Monitor in accordance with the USFWS (2009) *Desert Tortoise Field Manual* and the project's Desert Tortoise Translocation Plan, and any other applicable conditions made by the USFWS or CDFG. Any time a tortoise is handled, the Designated Biologist shall record and report pertinent data, in accordance with the final Desert Tortoise Translocation Plan. Monitoring of translocated desert shall be in accordance with the Desert Tortoise Translocation Plan and USFWS (2010b) guidance.

3. **Desert Tortoise Exclusion Fence Installation.** Permanent desert tortoise exclusion fencing shall be installed around the project site. The alignments for all desert tortoise exclusion fencing shall be flagged and surveyed for desert tortoise by the Designated Biologist and Biological Monitors no more than 24 hours prior to the initiation of fence construction. The fence alignment surveys shall be conducted using techniques approved by the USFWS and CDFG and may be conducted in any season with USFWS and CDFG approval. The fence alignment clearance surveys shall provide 100 percent coverage of all areas to be disturbed and an additional buffer 90 feet wide centered on the fence alignment (i.e., 45 feet along each side of the fence line). Survey transects shall be no greater than 15 feet apart. All potential desert tortoise burrows shall be examined to assess occupancy by desert tortoises. Security fencing will be installed as near as is feasible to permanent desert tortoise exclusion fencing in order to prevent animals from being trapped between the two fences.

   a. **Timing of Fence Installation.** The exclusion fencing shall be installed prior to the pre-construction clearance surveys. No ground-disturbing activity will be permitted within the fenced area until completion of the pre-construction clearance surveys.

   b. **Fence Material and Installation.** The exclusion fencing shall be constructed in accordance with the USFWS (2009) *Desert Tortoise Field Manual* (Chapter 8 – Desert Tortoise Exclusion Fence).

   c. **Security Gates.** Security gates shall be designed with minimal ground clearance to prevent entry by tortoises. The gates should be electronically activated to open and close immediately after the vehicle(s) have entered or exited to prevent the gates from being kept open for long periods of time. Cattle grating designed to safely exclude desert tortoise may be installed at the gated entries to discourage tortoises from gaining entry (to be determined by the BLM in consultation with CDFG and USFWS).

   d. **Fence Inspections.** The exclusion fencing shall be regularly inspected during project construction and operation. If tortoises were moved out of harm's way during fence construction, fencing in that area shall be inspected at least twice daily for a minimum of 7 days after moving the animal to ensure that the recently moved tortoise has not been trapped in the fence. Thereafter, permanent fencing shall be inspected monthly and

within 24 hours following all major rains. Major rains are defined as a storm(s) for which surface flow is detectable within the fenced drainages. Any damage to the fencing shall be temporarily repaired immediately to keep tortoises from entering the site, and permanently repaired within 48 hours of observing damage. Monthly and post-rainfall inspections of permanent site fencing shall continue throughout the construction, O&M, and decommissioning of the project. Temporary fencing shall be inspected weekly and, where drainages intersect the fencing, during and within 24 hours following major rains. All temporary fencing shall be repaired immediately upon discovery of damage, and the Designated Biologist or Authorized Biological Monitor shall inspect the area to determine whether the damage may have permitted tortoise entry.

e. **Temporary Exclusion Fencing.** Any project activities during construction, O&M, or decommissioning that take place outside of the permanently fenced site within desert tortoise habitat, and have the potential to disturb native soils or vegetation, shall be subject to fencing and pre-construction clearing survey requirements, or shall take place only while a Biological Monitor is on-site. Temporary tortoise exclusion fencing may be placed on access roads or other work sites, including gen-tie line construction sites, in accordance with direction from BLM, Riverside County, USFWS, and CDFG. The fence installation shall be supervised by the Designated Biologist and monitored by the Biological Monitors to ensure the safety of any tortoise present.

4. **Desert Tortoise Clearance Surveys.** Following construction of the tortoise exclusion fencing, the fenced area (including permanent and temporarily fenced areas) shall be cleared of tortoises by the Designated Biologist and Biological Monitors. Clearance surveys shall be conducted in accordance with the USFWS 2009 *Desert Tortoise Field Manual* (Chapter 6 – Clearance Survey Protocol for the Desert Tortoise – Mojave Population) and shall consist of at least two surveys covering 100 percent of the enclosed area by walking transects no more than 15 feet apart. Surveys shall be repeated until two consecutive 100%-coverage surveys are completed without finding live tortoises. Any tortoise located during clearance surveys shall be relocated and monitored in accordance with the Desert Tortoise Translocation Plan. The fence perimeter shall also be inspected for any tortoises pacing outside the fence.

5. **Monitoring Following Clearing.** Following the desert tortoise clearance surveys, the Designated Biologist and Biological Monitors shall monitor initial clearing and grading activities to find and translocate any tortoises which may have been missed during the clearance survey. Should a tortoise be discovered, it shall be translocated as described in the Desert Tortoise Translocation Plan to an area approved by the Designated Biologist. Any time over the life of the project that a desert tortoise is found within the exclusion fencing, the Designated Biologist shall immediately contact the BLM, Riverside County, CDFG, and USFWS; monitor the tortoise's location and activities; and imple-

ment translocation of the animal in accordance with and the approved Desert Tortoise Translocation Plan and in consultation with the BLM, Riverside County, USFWS, and CDFG.

6. **Relocation of Other Special-Status Species.** Wherever feasible and safe, any special-status mammal or reptile incidentally encountered during desert tortoise clearance surveys or monitoring shall be actively or passively relocated outside the exclusion fencing.

7. **Reporting.** Methods and results of all activities described in this mitigation measure shall be reported by the Designated Biologist in the Monthly Compliance Reports. Within 30 days after completion of desert tortoise clearance surveys and translocation, the Designated Biologist shall submit a Desert Tortoise Clearance Survey, Exclusion Fencing, and Translocation Report to the BLM, Riverside County, USFWS, CDFG, and JTNP describing methods and results of the fencing, clearance surveys, and translocation (if any). The report will also document any other animals relocated during the clearance surveys.

MM WIL-3 **Nesting Bird Management Plan, Pre-Construction Nest Surveys, and Impact Avoidance Measures for Migratory and Nesting Birds.** The project owner will prepare a draft Nesting Bird Management Plan, describing measures to detect native birds that may nest on and adjacent to the project site or facilities and to avoid impacts to or take of those birds or their nests during all project phases. The draft Nesting Bird Management Plan will be submitted to the BLM for review and approval and the CDFG, USFWS, JTNP, and Riverside County for review and comment, and will be finalized by the project owner prior to issuance of BLM's Notification to Proceed. The Nesting Bird Management Plan will describe avoidance measures, such as buffer distances from active nests, based on the specific nature of project activities, noise or other disturbance of those activities, the bird species and conservation status, and other pertinent factors. The Plan will specify 330 feet as a standard buffer distance, and 500 feet for raptor species. The Plan will also identify bird species (or groups of species) that are relatively tolerant or intolerant of human activities and specify smaller or larger buffer distances as appropriate for those species. Additionally, the Plan will list all project construction activities and rank them in terms of noise and other potential disturbance to nesting birds, and specify any modifications to buffer areas as appropriate to each activity. The Plan will also identify specific measures (if any) to prevent or reduce bird nesting activity on project facilities. The Plan will include specific monitoring measures to track any active bird nest within or adjacent to the project site, bird nesting activity, project-related disturbance, and fate of each nest. The Nesting Bird Management Plan may be incorporated into the Bird and Bat Conservation Strategy (MM WIL-6) as a separate chapter. Pre-construction nest surveys for nesting birds shall be conducted prior to any construction activities that will occur during the breeding period (from February 1 through August 31). The project owner shall take measures to avoid impacts to any active bird nest within or adjacent to a work area. The Designated Biologist or Biological Monitors conducting the surveys shall be

experienced bird surveyors and familiar with standard nest-locating techniques such as those described in Martin and Guepel (1993). Surveys shall be conducted in accordance with the following guidelines. Nothing in this measure requires the project owner to conduct nesting bird surveys by entering private lands adjacent to the project site when the project owner has made reasonable attempts to obtain permission to enter the property for survey work but was unable to obtain such permission. In this situation only, the project owner may substitute binocular surveys for protocol field surveys. Burrowing owl surveys are addressed in MM WIL-4; this measure applies to other birds.

1. Surveys shall cover all potential nesting habitat within the project site or other work areas and within a 500-foot buffer of these areas;
2. At least two pre-construction surveys shall be conducted, separated by a minimum 10-day interval. The second pre-construction survey shall be conducted no more than 2-3 days prior to the start of construction activity. Additional follow-up surveys may be required if periods of construction inactivity exceed one week in any given area (an interval during which birds may establish a nesting territory and initiate egg laying and incubation);
3. If active nests are detected during the survey, the project owner will implement avoidance measures identified in the Nesting Bird Management Plan, and the Designated Biologist will be responsible for monitoring the implementation, conformance, and efficacy of those measures, according to the monitoring requirements of the Nesting Bird Management Plan.
4. A monitoring plan shall be prepared and implemented as part of the Nesting Bird Management Plan to ensure no disturbance to active nests present within or adjacent to the work area takes place; the plan shall be reviewed and approved by BLM, Riverside County, USFWS, and CDFG prior to the initiation of ground-disturbing activities;
5. Prior to the start of any project-related ground disturbance activities, the Designated Biologist shall provide the BLM, Riverside County, CDFG, USFWS, and JTNP a report or memorandum describing the findings of the pre-construction nest surveys, including the time, date, and duration of the survey; identity and qualifications of the surveyor(s); and a list of species observed. If active nests are detected during the surveys, the report shall include descriptions of avoidance zones and methods used to determine avoidance zones and maps or aerial photos identifying nest locations and the boundaries of no-disturbance buffer zones;
6. The Designated Biologist or Biological Monitor shall monitor the nest until nestlings have fledged and dispersed. Activities that might, in the opinion of the Designated Biologist, disturb nesting activities shall be prohibited within the buffer zone until such a determination is made;
7. The Designated Biologist or Biological Monitor shall monitor work areas, including active work areas, throughout the breeding season each year, throughout the construction, O&M, and decommissioning phases of the project; and

8. Throughout the construction, O&M, and decommissioning phases of the project, nest locations, project activities in the vicinity of nests, and any adjustments to buffer areas shall be described and reported in regular monitoring and compliance reports described in MM VEG-2.

MM WIL-4 **Burrowing Owl Impact Avoidance, Minimization, and Compensation Measures.** Pre-construction surveys for burrowing owls shall be conducted prior to any construction activities, at any time of year. The project owner shall take measures to avoid impacts to any active burrowing owl burrow within or adjacent to a work area. Nothing in this condition requires the project owner to conduct burrowing owl surveys by entering private lands adjacent to the project site when the project owner has made reasonable attempts to obtain permission to enter the property for survey work but was unable to obtain such permission. In this situation only, the project owner may substitute binocular surveys for protocol field surveys.

1. **Pre-Construction Surveys.** The Designated Biologist shall conduct pre-construction surveys for burrowing owls, no more than 30 days prior to the start of ground-disturbing activities in any part of the project area. Surveys shall be conducted within the project site and along all linear facilities in accordance with the most current CDFG guidelines (CDFG 2012or updated guidelines as they become available). Phase 2 surveys consistent with those guidelines may be conducted concurrently with desert tortoise clearance surveys. Burrowing owl surveys shall also be completed within all suitable habitat within 500 feet of all project disturbance areas.

2. **Avoidance Measures.** If an active burrowing owl burrow is detected within any project disturbance area, or within a 500-foot buffer of the disturbance area(s), the following avoidance and minimization measures shall be implemented:

   a. A 330-foot radius buffer zone surrounding the burrow shall be flagged, and no impacts to soils or vegetation or noise levels above 65 dBA will be permitted while the burrow remains active or occupied. Disturbance-free buffers may be modified based on site-specific conditions in consultation with the California Department of Fish and Game.

   b. Monitoring and reporting the burrowing owl burrow and surrounding activities shall be as described for active bird nests (MM WIL-3).

3. **Document Activity.** Burrowing owl burrows may only be destroyed after the Designated Biologist has determined that the burrows are no longer occupied or active.

4. **Habitat Compensation.** If known burrowing owl burrows are destroyed during the course of the project, then the project owner shall mitigate this impact by acquisition and protection of compensatory mitigation lands for burrowing owls, according to the requirements described in Mitigation Measure VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat). The project owner shall provide for the management and protection, in perpetuity, of 19.5 acres of land for each single burrowing owl or breeding pair of

burrowing owls that is displaced by construction of the project. This compensation acreage of 19.5 acres per single bird or pair of nesting owls assumes that there is no evidence that the compensation lands are occupied by burrowing owls. If burrowing owls are observed to occupy the compensation lands, then the replacement ratio will be 13.0 acres per pair or single bird. This off-site burrowing owl habitat may be "nested" within habitat acreage designated as compensation for other biological resources, so long as it provides sufficient acreage of suitable burrowing owl habitat (see MM VEG-6).

5. **Passive Relocation.** If active burrowing owl burrows are located within the project site or any work area, the project owner may contract a qualified biologist to passively relocate the owls, outside the nesting season only, by preparing and implementing a Burrowing Owl Passive Relocation Plan, as described below. No relocation of burrowing owls will be permitted during breeding season, unless the Designated Biologist determines that an occupied burrow is not occupied by a mated pair. The Plan shall include, but not be limited to, the following elements:

   a. **Assessment of Suitable Burrow Availability.** The Plan shall include an inventory the availability of existing, suitable, and unoccupied burrow sites within 100 meters (330 feet) of the project area or work site. Suitable burrows will include inactive desert kit fox, ground squirrel, or desert tortoise burrows that are deep enough to provide suitable burrowing owl nesting sites (as determined by the Designated Biologist or other biologist authorized by the Resource Agencies and BLM). If two or more suitable and unoccupied burrows are present in the area for each burrowing owl that will be passively relocated, then no replacement burrows will need to be built.

   b. **Replacement Burrows.** For each burrowing owl that will be passively relocated, if fewer than two suitable unoccupied burrows are available in the area, then the project owner shall construct at least two replacement burrows within or near the project area. Burrow replacement sites shall be in areas of suitable habitat for burrowing owl nesting, and be characterized by minimal human disturbance and access. Relative cover of non-native plants within the proposed relocation sites shall not exceed the relative cover of non-native plants in the adjacent habitats; and the Plan shall describe measures to ensure that burrow installation or improvements would not affect sensitive species habitat or any burrowing owls already present in the relocation area. The Plan shall provide guidelines for creation or enhancement of at least two natural or artificial burrows for each active burrow within the project disturbance area, including a discussion of timing of burrow improvements, specific location of burrow installation, and burrow design. Design of the artificial burrows shall be consistent with CDFG guidelines (CDFG 2012 or more current guidance as it becomes available) and shall be approved by the BLM, Riverside County, CDFG, and USFWS.

c. **Methods.** Provide detailed methods and guidance for passive relocation of burrowing owls, outside the breeding season. Occupied burrows may not be disturbed during the nesting season (February 1 to August 31) to avoid "take" under the MBTA and Fish and Game codes, unless the Designated Biologist determines it is not occupied by a mated pair.

d. **Monitoring and Reporting.** Describe monitoring and management of the replacement burrow site(s), and provide a reporting plan. The objective shall be to manage the relocation area for the benefit of burrowing owls, with the specific goal of maintaining the functionality of the burrows for a minimum of two years.

MM WIL-5 **Golden Eagle Pre-construction and Construction Phase Surveys.** The project owner shall implement the following measures to document golden eagle occurrence in the project area and surrounding mountains. Survey schedule and requirements will be as identified below unless otherwise authorized by the BLM in consultation with the USFWS and CDFG.

1. **Annual Winter and Nesting Season Surveys.** Beginning in winter 2011-12, and continuing throughout the construction phase of the project, the project owner shall contract with a qualified ornithologist to conduct winter season and nesting season surveys of golden eagle habitat use in Chuckwalla Valley and surrounding mountains within a 10-mile radius of the project site and gen-tie alignment. Nesting season surveys will determine occupancy, productivity, and chronology of known or newly discovered nesting territories within the 10-mile radius. Survey methods for the inventory shall be either ground-based or helicopter-based, as described in the *Golden Eagle Technical Guidance* (Pagel et al. 2010) or more current guidance from the USFWS. Winter surveys will evaluate golden eagle occurrence and habitat use within the 10-mile radius during winter.

2. **Winter Season Survey Data.** Data collected during winter season surveys shall include dates, times, locations, observation minutes, nest status, and weather conditions during field surveys; panoramic photographs from the survey locations, indicating areas viewed; and compilations of all golden eagle and other raptor observations for each survey date.

3. **Nesting Season Inventory Data.** Data collected during the nesting season surveys shall include at least the following: territory status (unknown, vacant, occupied, breeding successful, breeding unsuccessful); nest location, nest elevation; age class of golden eagles observed; nesting chronology; number of young at each visit; photographs; and substrate upon which nest is placed.

4. **Determination of Unoccupied Territory Status.** A nesting territory or inventoried habitat shall be considered unoccupied by golden eagles only after completing at least two full surveys in a single breeding season.

5. **Monitoring and Adaptive Management Plan.** If an occupied nest (as defined by Pagel et al. 2010) is detected within 10 miles of the project site or gen-tie line alignment, the project owner shall contract a qualified biologist to

prepare and implement a Golden Eagle Monitoring and Management Plan for the duration of construction to ensure that project construction activities do not result in injury or disturbance to golden eagles. The monitoring methods shall be consistent with those described in the *Golden Eagle Technical Guidance* (Pagel et al. 2010) or more current guidance from the USFWS. The Monitoring and Management Plan shall be implemented upon its approval by BLM, in consultation with USFWS, Riverside County, and CDFG. A copy shall be provided to JTNP for review and comment. Triggers for adaptive management shall include any evidence of project-related disturbance to nesting golden eagles, including but not limited to: agitation behavior (displacement, avoidance, and defense); increased vigilance behavior at nest sites; changes in foraging and feeding behavior, or nest site abandonment. The Monitoring and Management Plan shall include a description of adaptive management actions, to include, but not be limited to, cessation of construction activities that are deemed by the Designated Biologist to be the source of golden eagle disturbance.

6. **Reporting.** Golden eagle survey data and, if applicable, nest activity monitoring results and any adaptive management actions taken, will be provided to BLM, Riverside County, CDFG, USFWS, and JTNP in monthly monitoring reports, as seasonal data becomes available and if specific nest monitoring or any adaptive management actions are taken, and summarized in annual project monitoring reports.

MM WIL-6 **Bird and Bat Conservation Plan.** The project owner shall contract a qualified biologist to prepare and implement a Bird and Bat Conservation Plan (formerly titled Avian and Bat Protection Plan) in consultation with the USFWS. The objective of the Bird and Bat Conservation Plan will be to minimize death, injury, or other adverse effects to birds or bats, including potential for take of golden eagles, from project disturbance or from collisions with facility features including power plant structures, gen-tie lines or towers, evaporation ponds, and other facilities. The Plan will provide:

- A summary of Avian Point Count data (and raw data sheets from bird surveys);
- All available biological information about golden eagles that breed, feed, shelter and/or migrate in a 10-mile buffer of the project site;
- A detailed description of ongoing and future golden eagle surveying, nest activity monitoring, and monitoring plan (see MM WIL-5);
- A cumulative effects analysis of regional impacts to golden eagle foraging habitat;
- An assessment of the project's potential risks to birds and bats.

The Bird and Bat Conservation Plan shall conform to the recommendations of the USFWS (2010c) or more current guidelines if available. It shall describe all project facilities that have the potential to affect birds or bats (including collisions or effects of polarized light from the solar panels); describe all design and operational features incorporated to minimize potential effects, and identify additional

adaptive management measures to be implemented as needed (e.g., visual screening on the perimeter fence to minimize bird and bat access into the facility; modifications such as netting or shielding to exclude nesting birds from facilities; seasonal modifications to panel washing, maintenance or inspection schedules to prevent damage to bird nests, or deterrents to prevent birds or bats from accessing facilities). In addition, if the O&M facility is developed off-site, a monopole structure will be used to support telecommunications equipment in order to deter bird nesting and use by ravens. The Plan also shall provide a reporting schedule for all actions taken during project construction, O&M, and decommissioning. The Plan will be subject to approval by the USFWS, in consultation with BLM, Riverside County, CDFG, and JTNP.

MM WIL-7 **Desert Kit Fox and American Badger Impact Avoidance.** The project owner shall contract a qualified biologist to prepare a Draft Passive Relocation Plan for Desert Kit Fox and American Badger; conduct a pre-construction survey to locate and identify all potential dens or burrows of desert kit fox or American badger within the proposed solar facility project area; and implement the Passive Relocation Plan. Surveys and exclusion of any desert kit fox or American badger present will be scheduled and designed to be completed before initiation of site preparation (i.e., site clearing, initial grading, or storage pond construction) to ensure these animals are not within the site as construction proceeds. The survey should be conducted well in advance of site preparation or desert tortoise exclusion fencing to ensure effective passive relocation of the animals from the project site. The Draft Passive Relocation Plan shall be submitted to CDFG and BLM for review and approval and to JTNP for review and comment prior to implementation. The passive Relocation Plan shall include measures as listed below, to be implemented if potential burrows of either species are located within the project area.

1. All potential kit fox or badger dens shall be classified as inactive, potentially active, or definitely active. Inactive dens within the project area, or that would be directly impacted by any construction activities, shall be excavated by hand and backfilled to prevent reuse.
2. Potentially active dens within the project boundaries shall be monitored for three consecutive nights using a tracking medium (such as diatomaceous earth or fine clay) and/or motion-activated infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den shall be considered inactive, and excavated and backfilled by hand.
3. Occupied kit fox or badger dens, if present, shall be flagged and monitored daily to determine whether the den is occupied by a female with young (i.e., a maternity den) and ground-disturbing activities shall be avoided within 200 feet of the den as long as it remains occupied.
4. The Plan shall include an inventory of existing, suitable, and unoccupied burrow sites within 100 meters (330 feet) of the project area or work site. If badgers or kit foxes must be relocated from the project area, at least two

unoccupied "escape dens" must be available for each active badger or kit fox den to be excavated. If insufficient unoccupied escape dens are available, then the project owner shall construct them at suitable sites outside the project boundaries for each active badger or kit fox den to be excavated prior to passive relocation or forced dispersal. The Draft Plan will include a description of any proposed or potential ground disturbing activities related to kit fox relocation (e.g., locations for artificial burrow construction).

5. Solitary male kit foxes or badgers, or females without young, shall be "passively relocated" by slowly excavating the burrow (by hand under the direct supervision of the Designated Biologist) and allowing the animal to disperse from the site (e.g., by providing a temporary monitored opening in the fence and directing the animal toward the opening with temporary plastic construction fencing). In the event that passive relocation techniques fail, the project owner will contact CDFG to explore other relocation options.
6. Maternity dens shall be avoided during the pup-rearing season and a minimum 200-foot disturbance-free buffer maintained around them. Female kit foxes or badgers with young, if present, shall not be directed off-site until the young are ready to leave the dens and sufficiently independent from the parents.
7. The Plan will include measures to prevent animals from returning to the project site or, if they do return, to passively exclude them a second time.
8. The Plan will provide CDFG the opportunity to test animals for canine distemper virus, vaccinate them against it, fit the animals with radio collars for follow-up tracking, or take other management actions as appropriate.
9. A written memorandum documenting the implementation of the removal or forced dispersal shall be provided to BLM, Riverside County, CDFG, and JTNP within 30 days of completion.

MM WIL-8 **Raven Monitoring, Management, and Control Plan.** The project owner shall contract a qualified biologist to prepare and implement a Raven Monitoring, Management, and Control Plan (Raven Plan) that shall be consistent with current USFWS raven management guidelines and that meets the approval of the BLM, Riverside County, USFWS, and CDFG. The purpose of the Raven Plan shall be to minimize project-related predator subsidies and prevent any increases in raven numbers or activity during construction, O&M, and decommissioning. The Plan shall address all project components and their potential effects on raven numbers and activity. The threshold for implementation of raven control measures shall be any increases in raven numbers from baseline conditions, as detected by monitoring to be implemented pursuant to the Plan. Regardless of raven monitoring results, the project owner shall be responsible for all other aspects of raven management described in the Plan, including avoidance and minimization of project-related trash, water sources, or perch/roost/nest sites that could contribute to increased raven numbers, throughout the life of the project, including construction, O&M, and decommissioning. In addition, to offset the cumulative contributions of the project to desert tortoise from increased raven numbers, the project

owner shall contribute to the USFWS Regional Raven Management Program. The project owner shall do all of the following:

1. **Prepare and Implement a Raven Management Plan** that shall include, but shall not be limited to the following components. The Plan shall be finalized and approved by BLM, Riverside County, USFWS, and CDFG and provided to the JTNP for review and comment prior to the start of construction activities.
   a. Identify all potential project activities, structures, components, and other effects that could provide predator subsidies or attractants, including potential sources of food and water, as well as nest or perch sites. These will include but will not be limited to waste food material, road killed animals, water storage (including evaporation ponds and construction phase storage ponds), potential pooling from leaks, dust control, or waste water, and perch or roost sites on project facilities and infrastructure;
   b. Describe management practices to avoid or minimize conditions that might increase raven numbers and predatory activities;
   c. Specify a program to monitor raven presence in the project vicinity and detect any increase in numbers or activity;
   d. Specify raven activity thresholds for implementation of control measures;
   e. Describe control practices for ravens to be implemented as needed based on the monitoring results;
   f. Address monitoring and nest removal during construction and for the life of the project; and
   g. Describe reporting schedules and requirements. For the first year of reporting, the project owner shall provide quarterly reports describing implementation of the Plan, thereafter the reports shall be submitted annually for the life of the project.
2. **Contribute to the USFWS Regional Raven Management Program.** No later than 30 days prior to the start of construction, the project owner shall submit payment to the project sub-account of the REAT Account held by the National Fish and Wildlife Foundation (NFWF) to support the USFWS Regional Raven Management Program. The amount shall be a one-time payment of $105 per acre of long-term or permanent disturbance (totaling $136,500 for a disturbance area of 1,300 acres, to be adjusted according to final project footprint).

Residual Impacts and Unavoidable Adverse Effects

Some of the mitigation measures presented in this section and in Section 4.3 would mitigate adverse impacts to wildlife resources by minimizing or preventing the impacts from occurring. For example, MM WIL-1 (Wildlife Impact Avoidance and Minimization) would minimize adverse impacts to wildlife, to the extent feasible through measures such as limiting disturbance areas and fencing, maintain a 15 miles-per-hour speed limit on access roads, requiring monitoring during all soil and vegetation disturbance, avoiding toxic soil binders, minimizing lighting,

maintaining noise levels below 65 dBA during the bird nesting season, minimizing dust, and avoiding entrapment of wildlife; and MM WIL-3 (Pre-Construction Nest Surveys and Impact Avoidance Measures for Migratory and Nesting Birds) would avoid or prevent destruction of active birds' nests, including eggs and nestling birds. Other mitigation measures would offset project impacts. MM VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat) requires acquisition and management of off-site vegetation and habitat in perpetuity to offset the permanent loss of vegetation and habitat on the project site. This measure, although compensating for impacts to wildlife habitat, would not prevent those impacts from occurring.

With the implementation of mitigation measures described in Section 4.3 and MM WIL-1 through MM WIL-8, the residual impacts to wildlife resources would be

1. the net loss of habitat on the project site for the duration of project O&M and for some period after ultimate site restoration after decommissioning;
2. the mortality of small mammals, reptiles, or other species unable to escape the site during initial site clearing and preparation;
3. the fragmentation and impaired connectivity of wildlife habitat in the upper Chuckwalla Valley over the life of the project;
4. the effects of noise, lighting, dust, and other disturbances to adjacent off-site habitat during construction, O&M, and decommissioning;
5. effects to displaced wildlife (finding and establishing new home ranges, intra- and/or interspecific competition for food and other resources, etc.); and
6. the potential, but unquantified loss of birds during project O&M.

These impacts are described above under direct and indirect impacts of project construction and operation.

4.4.8 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would have the same project boundaries as Alternative 4, except that it would exclude the portion of the site which is within the Palen-Ford WHMA, as shown on Figure 2-9, Alternative 5: Solar Project Excluding WHMA, in Appendix A. Alternative 5 would encompass 1,161 acres. It would not incorporate any substantial changes to construction, O&M, or decommissioning from those described for Alternative 4.

Construction

Direct and indirect effects to wildlife resources during construction of Alternative 5 would be as described in Section 4.4.7 with respect to the construction of Alternative 4, except that the acreage of impacts would be reduced by 47 acres, from 1,208 to 1,161 (see Table 4.4-1), and there would be no direct impacts to the Palen-Ford WHMA.

Operation and Maintenance

Direct and indirect effects to wildlife resources during O&M of Alternative 5 would be as described in Section 4.4.7 for the indirect O&M effects of Alternative 4.

Decommissioning

Direct and indirect effects to wildlife resources during decommissioning of Alternative 5 would be as described in Section 4.4.7 for the indirect decommissioning effects of Alternative 4.

Mitigation Measures

Mitigation measures to reduce or minimize impacts of Alternative 5 to wildlife resources are the same as those required in Section 4.4.7 for Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

Residual effects of Alternative 5 to wildlife resources would be as described in Section 4.4.7 for the residual effects of Alternative 4, except that the acreage of impacts to habitat would be reduced by 47 acres, from 1,208 to 1,161 (see Table 4.3-1).

4.4.9 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would have the same project boundaries as Alternative 4, except that it would exclude the 155-acre southern parcel of the project, as shown on Figure 2-10, Alternative 6: Reduced Footprint Solar Project, in Appendix A. Alternative 6 would encompass 1,044 acres. Because Alternative 6 would not require use of two separate parcels of land, the alternative would not require an underground electrical connection across the wash that separates the southwestern and northeastern parcels under Alternative 4. It would not, however, incorporate any other substantial changes to construction, O&M, or decommissioning from those described for Alternative 4.

Construction

Direct Effects

Direct and indirect effects to wildlife resources during construction of Alternative 6 would be as described in Section 4.4.7 with respect to the construction of Alternative 4, except that the acreage of impacts would be reduced by 164 acres, from 1,208 to 1,044 (see Table 4.3-1) and direct impacts to Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) habitat would be substantially reduced, from 180 to 98 acres (a 46 percent [46%] reduction in impacts). The Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) is a special-status plant community; it provides habitat elements and structure not available in surrounding Creosote Bush Scrub (Sonoran Desert Scrub), and it may serve as habitat for several special-status species, as discussed above.

Operation and Maintenance

Direct and indirect effects to wildlife resources during O&M of Alternative 6 would be as described in Section 4.4.7 for the indirect O&M effects of Alternative 4.

Decommissioning

Direct and indirect effects to wildlife resources during decommissioning of Alternative 6 would be as described in Section 4.4.7 for the indirect decommissioning effects of Alternative 4.

Mitigation Measures

Mitigation measures to reduce or minimize impacts of Alternative 6 to wildlife resources are the same as those required in Section 4.4.7 for Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

Residual effects of Alternative 6 to wildlife resources would be as described in Section 4.4.7 for the residual effects of Alternative 4, except that the acreage of impacts to habitat would be reduced by 164 acres, from 1,208 to 1,044 (see Table 4.3-1).

4.4.10 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet. Because Alternative 7 would not require use of two separate parcels of land, the alternative would not require an underground electrical connection across the wash that separates the southwestern and northeastern parcels under Alternative 4. It would not, however, incorporate any other substantial changes to construction, O&M, or decommissioning from those described for Alternative 4.

Construction

Direct Effects

Direct and indirect effects to wildlife resources during construction of Alternative 7 would be as described in Section 4.4.7 with respect to the construction of Alternative 4, except that the acreage of impacts would be reduced by 164 acres, from 1,208 to 1,044 (see Table 4.3-1) and direct impacts to Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) habitat would be substantially reduced, from 180 to 98 acres (a 46 percent [46%] reduction in impacts). The Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) is a special-status plant community; it provides habitat elements and structure not available in surrounding Creosote Bush Scrub (Sonoran Desert Scrub), and it may serve as habitat for several special-status species, as discussed above.

Operation and Maintenance

Direct and indirect effects to wildlife resources during O&M of Alternative 7 would be as described in Section 4.4.7 for the indirect O&M effects of Alternative 4.

Decommissioning

Direct and indirect effects to wildlife resources during decommissioning of Alternative 7 would be as described in Section 4.4.7 for the indirect decommissioning effects of Alternative 4.

Mitigation Measures

Mitigation measures to reduce or minimize impacts of Alternative 6 to wildlife resources are the same as those required in Section 4.4.7 for Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

Residual effects of Alternative 7 to wildlife resources would be as described in Section 4.4.7 for the residual effects of Alternative 4, except that the acreage of impacts to habitat would be reduced by 164 acres, from 1,208 to 1,044 (see Table 4.3-1).

4.4.11 Alternative A – No Gen-Tie

This No Action Alternative under NEPA defines the scenario that would exist if the proposed gen-tie line were not constructed and no plan amendment was issued. If this No Action Alternative were selected, the impacts of project construction, operation, decommissioning; as well as cumulative impacts associated with the gen-tie line would not occur. There would be no project-related disturbance of the ground at the tower locations and pull sites, no disturbance of desert vegetation and habitat, and no installation of transmission equipment.

4.4.12 Alternative B – Proposed Gen-Tie (Shared Towers)

Alternative B is the Applicant's proposed gen-tie line, which would utilize transmission infrastructure to be developed for the adjacent Desert Sunlight project by sharing the approved transmission ROW and the gen-tie towers (see Figure 2-11 in Appendix A). At the time of commencement of analysis for this EIS in September 2011, the approved Desert Sunlight gen-tie has not yet been constructed; therefore, the effects of constructing, operating, and decommissioning gen-tie Alternative B are analyzed here without the presumption that the approved Desert Sunlight gen-tie would be built. Please see the Cumulative Impacts section, below, for a separate analysis of the cumulative impacts of gen-tie line Alternative B and the approved Desert Sunlight gen-tie. Implementation of Alternative B, as it is described and analyzed here, would require independent construction, operation, and decommissioning of this transmission line.

Construction

Project construction, including construction methods, equipment, scheduling, and phasing, are described in Chapter 2. Construction of Alternative B would directly and indirectly affect wildlife and wildlife habitat. These effects, and mitigation measures to reduce the severity of these effects, are discussed below.

Direct Effects

Most direct effects of Alternative B construction to wildlife would be qualitatively similar to the construction effects described for Alternative 4 (Section 4.4.7), but smaller in scale and scope. Longer-term effects to wildlife movement would relatively minor, due to the wide spacing of project components (tower structures) and short-term nature of construction. These effects would be mitigated through implementation of the mitigation measures defined in this section.

Wildlife Habitat. The direct impacts to wildlife habitat would be the permanent and long-term loss of 92 acres of natural vegetation, including 41 acres of Creosote Bush Scrub (Sonoran Desert Scrub) and 51 acres of Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland). Following construction, remaining impacted and restored vegetation and habitat would be unsuitable for many species, particularly species with specific habitat requirements, including most special-status wildlife species. This is because of the long time periods required for recovery of vegetation in desert ecosystems. Therefore, much of the temporarily-impacted areas will

remain in a degraded state for much if not all of the life of the project, even after revegetation. However, vegetation and habitat conditions following construction would likely remain suitable for relatively common species, such as side-blotched lizard, house finch, northern mockingbird, and desert cottontail, which are habitat generalists capable of utilizing a wide range of vegetation types. Alternative B's direct impacts to wildlife habitat can be reduced or offset through implementation of Mitigation Measures VEG-1 through MM VEG-6. These measures would require biological monitoring during construction activities, implementation of a Worker Environmental Awareness Program, minimization of disturbance areas, vegetation management or revegetation of disturbed areas within the project footprint (as compatible with project operation and maintenance), and off-site compensation for permanent loss of vegetation and habitat.

Wildlife Mortality. Construction could cause mortality of mammals and reptiles from trampling or crushing during clearing, grading, or excavation. Potential mortality to native birds and nestlings is discussed below. Mitigation Measure WIL-1 (Wildlife Impact Avoidance and Minimization) would reduce wildlife mortality through a variety of strategies, including speed limits and other measures to minimize road strikes, and pre-construction surveys and salvage measures to relocate animals during initial clearing and grading, as practicable.

Noise and Lighting Impacts to Wildlife. Noise and lighting during gen-tie line construction would affect wildlife in adjacent habitats, as described in Section 4.4.7. Mitigation Measure WIL-1 (Wildlife Impact Avoidance and Minimization) would minimize the impacts of noise and lighting by preventing lighting from being directed away from work areas, and scheduling noisy construction activities outside the most sensitive season.

Desert Tortoise. Desert tortoises have been documented on and near the southern portions of the gen-tie line alignment and tortoises could be found at any time at any location along the alignment. Gen-tie line construction would take suitable and occupied desert tortoise habitat, and has the potential to kill or injure tortoises that may be active at work sites, or within burrows located at work sites, as described in Section 4.4.7. These impacts can be avoid, reduced, or offset through implementation of Mitigation Measures presented in Sections 4.3.7 and 4.4.7, including Mitigation Measures VEG-1 through MM VEG-6, MM WIL-1, and MM WIL-2. Desert tortoises found on work sites during gen-tie clearance surveys or construction activities would be moved from harm's way as appropriate, but would not be translocated farther than necessary. Portions of gen-tie alignment Alternative B are within designated desert tortoise Critical Habitat and the Chuckwalla DWMA. Impacts to these specially designated wildlife management areas are described below, and would be compensated at a 5:1 ratio (per MM VEG-6).

Special-Status Reptiles and Amphibians. Based on habitat and geographic range, desert tortoise and rosy boa are the only special-status reptile or amphibian species with a moderate or greater probability of occurring along the Alternative B alignment (Section 3.4). Project impacts and mitigation for desert tortoises would be the same as those described for Alternative 4. Habitat on the gen-tie alignment is only marginally suitable for rosy boa due to the relatively flat topography and lack of boulders or rock crevices where they typically take cover. However, the site is within their geographic range and could be occupied at low density. Project impacts to rosy boa could include mortality or injury to snakes, and the loss of habitat. These impacts can be reduced or offset through implementation of Mitigation Measures VEG-1 through MM VEG-6 (Section 4.3.7) and MM WIL-1 (Wildlife Impact Avoidance and Minimization).

Native Birds. The gen-tie alignment and surrounding area provides suitable nesting habitat for numerous resident and migratory bird species. Potential impacts to native birds, including their nests, eggs, and nestlings are described in Section 4.4.7. Construction impacts of the gen-tie line can be reduced or offset through implementation of Mitigation Measures VEG-1 through MM VEG-6 (Section 4.3.7), MM WIL-1 (Wildlife Impact Avoidance and Minimization), and MM WIL-3 (Pre-Construction Nest Surveys and Impact Avoidance Measures for Migratory Birds). Some bird species will likely nest at gen-tie construction sites during construction, even after initial grading and clearing. MM WIL-3 requires regular monitoring of work areas throughout the breeding season. In some cases, it may be necessary to reduce buffer areas or to remove or relocate a bird nest in coordination with the resource agencies to proceed safely with construction.

Burrowing Owl. Burrowing owls are uncommon in the area, but could occupy the gen-tie alignment in low numbers. Potential direct project impacts to burrowing owls would be similar to those described for nesting birds, but also could destroy occupied burrows or cause the owls to abandon burrows, during any season. If owls were present, construction during the breeding season could cause nest abandonment and the incidental loss of eggs or nestlings. These impacts can be mitigated through implementation of Mitigation Measures VEG-1 through MM VEG-6 (Section 4.3.7), MM WIL-1 (Wildlife Impact Avoidance and Minimization), MM WIL-3 (Pre-Construction Nest Surveys and Impact Avoidance Measures for Migratory Birds), and MM WIL-4 (Burrowing Owl Impact Avoidance, Minimization, and Compensation Measures).

Golden Eagle. The gen-tie alignment does not provide suitable golden eagle nesting habitat. However, the entire alignment is suitable foraging habitat, and is within several miles of golden eagle nesting territories located in the Eagle Mountains, Coxcomb Mountains, and Chuckwalla Mountains (see Section 3.4). Impacts of gen-tie construction to golden eagle foraging habitat would be qualitatively similar, but lesser in scale and magnitude, to those described for Alternative 4 in Section 4.4.7. However, permanent loss of habitat would total 92 acres over the 12.1-mile long alignment and would occur in small, discrete areas such as individual tower sites. Therefore, loss of foraging habitat would not be considered a substantial adverse impact for Alternative B.

Impacts to golden eagle foraging habitat can be offset through Mitigation Measure VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat). Additionally, Mitigation Measure WIL-5 (Golden Eagle Pre-construction and Construction Phase Surveys) would require annual monitoring during nesting season, and requires the project owner to prepare and implement an adaptive management plan if golden eagles are found nesting in the area at any time during project construction. Mitigation Measure WIL-6 (Bird and Bat Conservation Plan) would require the project owner to prepare and implement an overall strategy to avoid, minimize, or mitigate project impacts to birds and bats, including golden eagles, in consultation with the USFWS.

Infrastructure and construction equipment could cause collision or electrocution hazards to golden eagles and other birds during project construction. These construction phase hazards would be less important than similar collision and electrocution hazards that could occur during O&M of the gen-tie line, discussed below.

Other Special-Status Raptors. Several other special-status raptors have been reported on or near the project site, or are likely to occur in the area, at least during limited times of year (Sec-

tion 4.4.7). Impacts to raptor foraging habitat can be offset through Mitigation Measure VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat.

Gila Woodpecker and Special-Status Passerines. The desert vegetation and adjacent mountains provide foraging, cover, or breeding habitat for resident and migratory birds, described in Section 4.4.7. Potential gen-tie line construction impacts to these species would be as described above for nesting birds. These impacts can be mitigated through implementation of Mitigation Measures VEG-1 through MM VEG-6 (described in Section 4.3.7), MM WIL-1 (Wildlife Impact Avoidance and Minimization), and MM WIL-3 (Pre-Construction Nest Surveys and Impact Avoidance Measures for Migratory Birds).

Special-Status Bats. Several special-status bats could use the gen-tie alignment for foraging, but no suitable roosting habitat is available on-site for these species. Construction of Alternative B could impact special-status bats through the elimination of desert shrubland foraging habitat, particularly the Blue Palo Verde–Ironwood Woodland (Desert Dry Wash Woodland) habitat. Mitigation Measure WIL-6 (Bird and Bat Conservation Plan) would require the project owner to prepare and implement an overall strategy to avoid, minimize, or mitigate project impacts to birds and bats, in consultation with the USFWS.

Palm Springs Round-Tailed Ground Squirrel. Project construction would eliminate marginally suitable habitat for Palm Springs round-tailed ground squirrel along the gen-tie line alignment, but would not affect aeolian sands and mesquite hummocks that characterize its primary habitat. Direct effects of project construction would include the effects described in Section 4.4.7 for wildlife (habitat loss, mortality, and disturbance by noise and lighting). Implementation of Mitigation Measures VEG-1 through MM VEG-6 (Section 4.3.7) and MM WIL-1 (Wildlife Impact Avoidance and Minimization) would minimize or offset these impacts.

American Badger and Desert Kit Fox. Potential direct impacts to American badger and desert kit fox include mechanical crushing of individuals or burrows by vehicles and construction equipment, noise, dust, and loss of habitat. Implementation of Mitigation Measures VEG-1 through MM VEG-6 (Section 4.3.7) and MM WIL-1 (Wildlife Impact Avoidance and Minimization) would minimize or offset these impacts. In addition, MM WIL-7 (Desert Kit Fox and American Badger Impact Avoidance) would require the project owner to passively relocate desert kit fox or American badgers found at work sites, if needed.

Nelson's Bighorn Sheep, Burro Deer, and Yuma Mountain Lion. Habitat along the gen-tie line is primarily of marginal quality for Nelson's bighorn sheep, burro deer, and Yuma mountain lion. In addition, the scale of habitat loss would be relatively minor, as it would encompass 92 acres spread out over 12.1 miles. Impacts would be in small, discrete areas and would not present a substantial adverse impact in the form of loss of foraging habitat or interference with movement. The extent of marginally suitable habitat loss for Nelson's bighorn sheep, burro deer, and Yuma mountain lion would be relatively unimportant to movement. Loss of habitat on the gen-tie alignment, and expected off-site impacts such as noise, lighting, and disturbance would be minimized or offset through implementation of Mitigation Measures VEG-1 through MM VEG-6 (Section 4.3.7) and MM WIL-1 (Wildlife Impact Avoidance and Minimization).

Wildlife Movement. Gen-tie line construction would only affect wildlife movement in the area to a minimal and temporary extent at each work site. Impacts would include avoidance of the work area by wildlife during active construction, and disturbance from noise and light. How-

ever, due to the intermittent locations of construction activity and its temporary nature, wildlife would not be physically prevented from moving around project equipment in the gen-tie corridor. Impacts to wildlife movement would be offset through implementation of Mitigation Measure VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat), which requires habitat compensation at a 1:1 ratio to contribute to general wildlife movement and population connectivity for Nelson's bighorn sheep and desert tortoise populations.

Wildlife Management Areas. The gen-tie alignment Alternative B would be sited adjacent to the boundary of the Chuckwalla DWMA along Kaiser Road, but would not be within the DWMA in this area. It would traverse portions of the Chuckwalla CHU, and areas of overlap between the Chuckwalla DWMA and the Chuckwalla CHU at the southern end of the alignment. It would impact an estimated 34.2 acres of the CHU and 1.5 acres of DWMA/CHU overlap area, for a total of 35.7 acres of impacts to wildlife management areas and CHU. Alternative B would not be located within or near the Palen-Ford WHMA (see Table 4.4-2 and Figure 3.4-1 in Appendix A). Construction activities would directly impact wildlife utilizing these protected areas as described for Alternative 4. Implementation of mitigation measures would reduce or offset direct impacts to wildlife management areas.

Indirect Effects

Gen-tie line construction could have several indirect impacts to wildlife and its habitat, including introduction or spread of invasive weeds, displaced wildlife, and increased predation due to predator "subsidies" provided during construction. The indirect effects to wildlife of invasive weeds, and mitigation of those effects, are as described in Section 4.3.

Wildlife Displacement. Construction activities would cause most mobile vertebrate wildlife to leave the site, or attempt to leave, with the effects as described in Section 4.4.7. On the gen-tie alignment, most of these effects would be relatively short-term, and most species would be able to re-occupy the sites, or immediately adjacent habitat, upon completion of construction at each work site.

Increased Predation. Gen-tie line construction activities could provide resources in the form of trash, litter, or water, which attract and subsidize unnaturally high numbers of predators such as common ravens, coyotes, and feral dogs, as describe in Section 4.4.7. These impacts can be mitigated through implementation of Mitigation Measures VEG-1 (Assign a Designated Biologist and Biological Monitors), MM VEG-2 (Conduct Biological Monitoring and Reporting during Project Construction, Operations, and Decommissioning), MM VEG-3 (Prepare and Implement a Worker Environmental Awareness Program), MM WIL-1 (Wildlife Impact Avoidance and Minimization), and MM WIL-8 (Raven Monitoring, Management, and Control Plan).

Operation and Maintenance

O&M of Alternative B could directly affect wildlife due to long-term habitat effects (described in Section 4.3.12), and additional effects of transmission line corona noise, bird or bat collisions with gen-tie conductors, ongoing potential for introduction or spread of invasive weeds, and ongoing availability of raven "subsidies" (i.e., perch and nest sites). Transmission lines generate audible "corona noise" during operation. The noise is generally characterized as a crackling, hissing, or humming sound and is most noticeable during wet conductor conditions such as rain or fog. The amount of corona noise produced by a transmission line is a function of the voltage

of the line, the diameter of the conductor (or bundle of conductors), the elevation of the line above sea level, the condition of the conductor and hardware, and the local weather conditions. This noise increases with the voltage of the line, irregularities on the conductor surface caused either by age or moisture, and during high humidity, fog, or rain.

Direct Effects

Noise Impacts to Wildlife. Corona noise generated by the gen-tie line would result in noise levels of 50 dBA at the edge of the transmission line ROW. This noise level may be higher during rainstorms and in conjunction with corona noise generated by the other transmission lines to be located in the same ROW. However, noise levels would attenuate quickly with distance away from the line, blending with the existing ambient noise levels. Wildlife would likely notice the corona noise only when passing within close proximity to the line, and local wildlife would likely acclimate quickly to the noise.

Collisions and Electrocutions. The gen-tie line could present collision or electrocution risk to birds or bats. Bird mortality due to collision with overhead power lines, towers, cranes, or other features could occur during construction, O&M, or decommissioning of any project component, but are discussed here due to the long-term and persistent potential for collisions with the gen-tie lines.

Bird collisions with power lines generally occur when: (1) a power line or other aerial structure transects a daily flight path used by a concentration of birds, or (2) migrant birds are traveling at reduced altitudes and encounter tall structures in their path. Collision rates generally increase in low light conditions, during rain, snow, or strong winds, and during panic flushes when birds are startled by a disturbance or are fleeing from danger. Collisions are more probable near wetlands, valleys that are bisected by power lines, and within narrow passes where power lines run perpendicular to flight paths. Passerines (e.g., songbirds) and waterfowl (e.g., ducks) collide with wires (APLIC 2006), particularly during nocturnal migrations or poor weather conditions (Avery et al. 1978). However, passerines and waterfowl have a lower potential for collisions than larger birds, such as raptors. Passerines and waterfowl tend to fly under power lines, while larger species generally fly over lines and risk colliding with higher static lines. Also, many smaller birds tend to reduce their flight activity during poor weather conditions (Avery et al. 1978). The magnitude of collision-caused bird mortality cannot be predicted without extensive information on bird species, abundance, and movements in the area.

Large raptors including golden eagles, Swainson's hawks, ferruginous hawks, red-tailed hawks, prairie falcons, and other large aerial perching birds such as turkey vultures, are susceptible to electrocution on power lines because of their large size and proclivity to perch on tall structures. Transmission structure design is a major factor in causing or preventing raptor electrocutions. Electrocution occurs when a perching bird simultaneously contacts two energized phase conductors or an energized conductor and grounded hardware. This happens most frequently when a bird attempts to perch on a transmission structure with insufficient clearance between the conductor phases or conductors and grounds. The majority of raptor electrocutions are caused by distribution lines and relatively small transmission lines, energized at voltage levels between 1 kV and 69 kV. Higher voltage transmission lines are built with wider spacing between the conductors and grounds, and present reduced threat of electrocution. Electrocution can occur when horizontal separation is less than the wrist-to-wrist (flesh-to-flesh) distance of a bird's wingspan

or where vertical separation is less than a bird's length from head-to-foot. Electrocution can also occur when birds perched side-by-side span the distance between these elements (APLIC 2006).

The largest bird that is likely to come in contact with the gen-tie line is golden eagle (average wingspan to 7.5 feet; wrist-to-wrist length of 3.5 feet; height to 2.2 feet). The red-tailed hawk is the most common large bird that could come in contact with the gen-tie lines (average wingspan to 4.7 feet; wrist-to-wrist length of 1.9 feet; height to 1.8 feet). Other large birds in the area are turkey vulture (average 5.8-foot wingspan, two-foot wrist-to-wrist length, 1.8 feet tall) and great horned owl (average 4.3-foot wingspan, 2.1-foot wrist-to-wrist length, 1.3 feet tall). Swainson's hawk has a 4.5-foot wingspan, and can be 1.3 feet tall (bird sizes from APLIC 2006). The Avian Powerline Interaction Committee (APLIC 2006) guidelines recommend 60-inch separations between components to protect eagles and other birds from electrocution. The risk of electrocution would be minimized by implementation of Mitigation Measure WIL-1**,** which requires that the project owner implement APLIC Guidelines for the gen-tie and all electrical components.

Nesting Birds. Some bird species will likely nest on the gen-tie line structures during O&M. The potential for impacts to nesting birds during O&M would be similar to those described during the construction phase, for birds that may nest on the ground close to equipment, within the open metal framework of the panel structures, on buildings or other structures, or on idle construction equipment. The nesting behaviors of some native birds increases the likelihood that project O&M would require the removal or relocation of active nests in order to safely operate the facility. Mitigation Measure WIL-6 (Bird and Bat Conservation Plan) would require an evaluation of potential project hazards to birds and bats and implementation of adaptive management measures as appropriate to address them. This measure is expected to mitigate this potential risk to the extent feasible, but an unknown residual risk to birds may remain, even with implementation of the Bird and Bat Conservation Plan.

Indirect Effects

The indirect effects of the gen-tie O&M to wildlife and wildlife habitat include the ongoing potential for introduction or spread of invasive weeds, and increased predation on native species, including desert tortoise, due to predator "subsidies" (i.e., perch and nest sites for common ravens). The indirect effects of invasive weeds, and mitigation of those effects would be as described in Section 4.3.7. The indirect effects of predator subsidies during project O&M, and mitigation of those effects, would be as described in Section 4.4.7.

Decommissioning

Decommissioning of the gen-tie line is summarized in Chapter 2. The Alternative B gen-tie line, at least the DHSP portion, would be decommissioned concurrently with the solar generation facility at the end of its operational lifetime (30 years); however, the actual life of the project could be longer or shorter. When permanent closure is appropriate, a decommissioning plan will be prepared and submitted to the BLM for review and approval. The decommissioning plan will address the gen-tie line as well as the solar facility. Closure strategies may include temporary "mothballing," removing old facilities and upgrading to newer solar technology, or complete removal of equipment and restoration of the land to BLM-approved specifications. Impacts to wildlife resources would vary, according to the decommissioning strategy and the intended reuse of the site.

Direct Effects

Facilities removal during decommissioning would be expected to take place within the previously disturbed work areas, addressed as long-term construction impacts in this analysis. Removal or degradation of wildlife habitat would be limited to sites where those resources had recovered naturally or through implementation of the project owner's Vegetation Resources Management Plan (per Mitigation Measure VEG-5). Any potential direct impacts beyond the work areas would be limited to the effects of dust, noise, lighting, or similar direct off-site impacts, as discussed in Section 4.4.7, under direct effects of construction. These decommissioning impacts can be reduced through implementation of Mitigation Measures VEG-1 through MM VEG-6, as described in Section 4.3 and MM WIL-1 through MM WIL-8.

If the ultimate re-use of the alignment is to return it to natural open space, then the expected recontouring and replanting during decommissioning would have a net benefit to vegetation resources. This potential beneficial impact cannot be evaluated at this time, pending the final re-use decision and the details of the decommissioning plan.

Indirect Effects

The indirect effects of decommissioning to wildlife resources would be similar to the indirect effects described under Alternative B for project construction. These impacts would be minimized by Mitigation Measures VEG-1 (Assign a Designated Biologist and Biological Monitors), MM VEG-2 (Conduct Biological Monitoring and Reporting during Project Construction, Operations, and Decommissioning), MM VEG-3 (Prepare and Implement a Worker Environmental Awareness Program), MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan), MM WIL-1 (Wildlife Impact Avoidance and Minimization), and MM WIL-8 (Raven Monitoring, Management, and Control Plan).

Mitigation Measures

Mitigation measures to reduce or minimize impacts of Alternative B to wildlife resources are the same as those required in Section 4.4.7 for Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

With the implementation of Mitigation Measures VEG-1 through MM VEG-9 and MM WIL-1 through MM WIL-8**,** residual impacts to wildlife resources would be

(1) the net loss of habitat on the alignment;

(2) the direct effects of dust, noise, and other disturbances to adjacent off-site habitat during construction, O&M, and decommissioning of the gen-tie line; and

(3) the potential, but unquantified loss of birds during gen-tie O&M.

These impacts are described for Alternative B, under direct and indirect impacts of project construction and O&M.

4.4.13 Alternative C – Separate Transmission Towers within Same ROW

Alternative C would parallel the approved (but not yet constructed) Desert Sunlight gen-tie line, but would be located on separate towers within the same, or a slightly larger, ROW (Figure 2-14

in Appendix A). Because Alternative B is described and analyzed in Section 4.4.12 as a stand-alone alternative (i.e., without the presumption that the Desert Sunlight gen-tie would be built), the Alternative C design, construction, O&M, and decommissioning impacts are the same as described for Alternative B. The Alternative C alignment would be the same as Alternative B but would be located approximately 100 feet west of the Desert Sunlight towers, in a wider ROW. The same number of towers in a nearly identical alignment to that of the DSSF towers would be constructed. As described for Alternative B, the estimated area of permanent and long-term impacts for Alternative C is 92 acres. The Alternative C ROW would extend west of the approved DSSF gen-tie ROW, 60 feet into the adjacent Chuckwalla DWMA, to accommodate the overhang of transmission line conductors from the tower cross-members. No planned temporary or permanent ground disturbance would occur within the DWMA; ground disturbance in the DWMA would occur only during emergency maintenance. Any ground disturbance that occurs within the DWMA would be mitigated as described in MM VEG-6, which requires compensation at a 5:1 ratio for impacts to the DWMA.

Construction

Direct and indirect effects to wildlife resources during construction of Alternative C would be as described in Section 4.4.12 for the indirect construction effects of Alternative B.

Operation and Maintenance

Direct and indirect effects to wildlife resources during O&M of Alternative C would be as described in Section 4.4.12 for the indirect construction effects of Alternative B.

Decommissioning

Direct and indirect effects to wildlife resources during decommissioning of Alternative C would be as described in Section 4.4.12 for the indirect construction effects of Alternative B.

Mitigation Measures

Mitigation measures to reduce or minimize impacts of Alternative C to wildlife resources are the same as those required in Section 4.4.12 for Alternative B.

Residual Impacts and Unavoidable Adverse Effects

With the implementation of Mitigation Measures VEG-1 through MM VEG-9 and MM WIL-1 through MM WIL-8**,** residual impacts to wildlife resources would be (1) the net loss of habitat on the alignment; (2) the direct effects of dust and other disturbances to adjacent off-site habitat during construction, O&M, and decommissioning of the gen-tie line; and (3) the potential, but unquantified loss of birds during gen-tie O&M. These impacts are described in Section 4.4.7 for direct and indirect impacts of project construction and operation.

4.4.14 Alternative D – Cross-Valley Alignment

The DHSP gen-tie line Alternative D is the same alignment that was analyzed as the Desert Sunlight gen-tie alignment Alternative A-2 (BLM 2011) (see Figure 2-15 in Appendix A). The centerline of gen-tie Alternative D would be located 140 to 150 feet from the centerline of the existing SCE line, but the new gen-tie alignment would not be within the SCE ROW. Habitat types and biological resources within the Alternative D alignment are generally similar to those

within Alternative B, except that there is more active and disused agricultural land on the Alternative D alignment. Construction disturbances within the ROW would be similar to those described for gen-tie Alternative B (Section 4.4.12), including construction of any new permanent or temporary access roads; transmission structures; splicing/pull sites; and guard structures. The specific locations and numbers of these project components have not been determined. The materials and equipment staging areas and laydown areas would be located within the solar facility site, and no additional habitat disturbance would be needed for these project components (see Chapter 2).

Construction

Project construction, including construction methods, equipment, scheduling, and phasing, are described in Chapter 2. Construction of Alternative D would directly and indirectly affect wildlife and wildlife habitat. These effects, and mitigation measures to reduce the severity of these effects, are discussed below.

Most direct effects of Alternative D construction to wildlife would be as described for Alternative B. Construction impacts to wildlife habitat would be reduced because portions of the Alternative D alignment cross disused agricultural lands, and because the overall alignment is shorter than Alternative B's (Section 4.3). Impacts of Alternative D to wildlife management areas would be reduced from 35.7 acres to 20.3 acres (12.4 acres of CHU, 1.7 acres of DWMA/CHU overlap areas, and 6.2 acres of WHMA; see Table 4.4-2).

The remainder of this alternative's impacts to wildlife, including wildlife mortality; noise and lighting impacts; impacts to native birds, desert tortoise, golden eagles, other special-status wildlife species, and large mammals; and wildlife movement would be as described for gen-tie line Alternative B, and would be mitigated as described in Section 4.4.12.

Alternative D's indirect effects would be substantially the same as those identified for Alternative B, and would be mitigated as described for Alternative B.

Operation and Maintenance

O&M of Alternative D would directly affect wildlife as described for Alternative B, and would be mitigated as described for Alternative B.

Decommissioning

Potential decommissioning impacts to wildlife and wildlife habitat are unknown, and will depend upon the details of the Decommissioning Plan and the ultimate re-use of the alignment. In general, the direct and indirect effects of decommissioning gen-tie line Alternative D would be as described for Alternative B. If the ultimate re-use of the alignment is to return it to natural open space, then decommissioning would have a net benefit to wildlife resources. This potential beneficial impact cannot be evaluated at this time, pending the final re-use decision and the details of the decommissioning plan.

Mitigation Measures

Mitigation measures to reduce or minimize impacts of Alternative D to wildlife resources are the same as those required in Section 4.4.12 for Alternative B.

Residual Impacts and Unavoidable Adverse Effects

With the implementation of Mitigation Measures VEG-1 through MM VEG-9 and MM WIL-1 through MM WIL-8**,** residual impacts to wildlife resources would be (1) the net loss of habitat on the alignment; (2) the direct effects of dust and other disturbances to adjacent off-site habitat during construction, O&M, and decommissioning of the gen-tie line; and (3) the potential, but unquantified loss of birds during gen-tie O&M.

4.4.15 Alternative E – New Cross-Valley Alignment

Gen-tie Alternative E would be a new ROW alignment across the Chuckwalla Valley (Figure 2-16 in Appendix A). It would not follow any existing or approved utility or road ROW. Construction disturbances within the ROW would be similar to those described for gen-tie Alternative B (Section 4.4.12). The total anticipated disturbance area is estimated as 85 acres for the purpose of this analysis.

Gen-tie Alternative E is the only alternative or project component that would affect windblown sand habitat, and as a result has the potential to affect special-status plants and wildlife species that might be found in that habitat, as described below and in Sections 3.3 and 3.4. Based on the proportions of each vegetation type along the alignment, this analysis estimates that 13 acres of Creosote Bush Scrub (Sonoran Desert Scrub) on partially stabilized sandfields and 7 acres of active sand dunes would be affected by Alternative E.

Construction

Project construction, including construction methods, equipment, scheduling, and phasing, are described in Chapter 2. Construction of Alternative E would directly and indirectly affect wildlife and wildlife habitat. These effects, and mitigation measures to reduce the severity of these effects, are discussed below.

Direct Effects

Most direct effects of Alternative E construction to wildlife would be as described for Alternative B (Section 4.4.12). Construction impacts of Alternative E to wildlife management areas would increase from 35.7 acres to 56.1 acres (2.5 acres of DWMA, 1.8 acres of DWMA/CHU overlap areas, and 51.8 acres of WHMA; see Table 4.4-2).

Mojave Fringe-toed Lizard and Palm Springs Round-Tailed Ground Squirrel. Project construction would affect occupied habitat for Mojave fringe-toed lizard and suitable habitat for Palm Springs round-tailed ground squirrel along the gen-tie line alignment, and could cause direct mortality of these species by crushing or other effects, as described above for reptiles and small mammals under the analyses for Alternative B (Section 4.4.12). Implementation of Mitigation Measures VEG-6 and MM WIL-1 (Wildlife Impact Avoidance and Minimization) would reduce or offset these impacts. For Alternative E, MM VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat) includes a requirement to compensate for impacts to occupied and suitable Mojave fringe-toed lizard habitat at a 5:1 ratio.

The remainder of this alternative's impacts to wildlife, including wildlife mortality; noise and lighting impacts; impacts to native birds, desert tortoise, golden eagles, other special-status wild-

life species, and large mammals; and wildlife movement would be as described for Alternative B, and would be mitigated as described in that section.

Indirect Effects

Construction of gen-tie line Alternative E would have indirect impacts to wildlife and its habitat, as described for Alternative B, including introduction or spread of invasive weeds, displaced wildlife, and increased predation due to predator "subsidies" provided during construction. In addition to the impacts to common species and special-status species, discussed in Section 4.4.12, this alternative would also have indirect effects to aeolian sand habitat and associated special-status species including Mojave fringe-toed lizard and Palm Springs round-tailed ground squirrel. Indirect impacts to these species would be as discussed above for other small, terrestrial species, and include the potential for loss of habitat through introduction or spread of invasive weed species and a potential increase in predators through subsidies. These impacts would be mitigated or offset through the implementation of MM VEG-9, which requires the project owner to prepare and implement an Integrated Weed Management Plan; and MM WIL-8, which would require management of all potential predator subsidies, monitoring of raven presence and abundance, implementation of specific control measures as needed, and contribution to the region-wide Raven Management Program.

Operation and Maintenance

O&M of Alternative E would directly affect wildlife as described for Alternative B. These effects would include noise, collision and electrocution hazards, and potential interference of nesting birds with O&M of the gen-tie line. These impacts would be mitigated as described above, for Alternative B. Additionally, O&M of Alternative E could cause mortality or other ongoing disturbance to special-status species in aeolian sand habitats, by crushing the animals during O&M activities or causing other habitat impacts. These effects would be similar to the effects during construction, described for Alternative B and mitigation would be the same.

Decommissioning

Potential decommissioning impacts to wildlife and wildlife habitat are unknown, and will depend upon the details of the Decommissioning Plan and the ultimate re-use of the alignment. In general, the direct and indirect effects of decommissioning gen-tie line Alternative E would be as described for Alternative B. If the ultimate re-use of the alignment is to return it to natural open space, then decommissioning would have a net benefit to wildlife resources. This potential beneficial impact cannot be evaluated at this time, pending the final re-use decision and the details of the decommissioning plan.

Mitigation Measures

Mitigation measures to reduce or minimize impacts of Alternative D to wildlife resources are the same as those required in Section 4.4.12 for Alternative B.

Residual Impacts and Unavoidable Adverse Effects

With the implementation of Mitigation Measures VEG-1 through MM VEG-9 and MM WIL-1 through MM WIL-8, the residual impacts to wildlife resources under Alternative E would be the same as those for Alternative B.

4.4.16 Cumulative Effects

Geographic Scope

The geographic scope and methodology, analytical tools and study limitations, and past, present, and reasonably foreseeable projects for the analysis of cumulative impacts to biological resources, vegetation species were described in detail in Section 4.3.16. For the majority of wildlife species, the same NECO planning area relevant to vegetation resources encompasses the geographic scope for the cumulative analysis for wildlife. For the desert tortoise, the geographic scope for this analysis is the Colorado Desert Recovery Unit, as described in the Revised Recovery Plan for the Mojave Population of the Desert Tortoise (USFWS 2011a).

The geographic scope for the analysis of cumulative impacts on wildlife movement and connectivity is the Chuckwalla Valley and surrounding mountain ranges at a local scale, and, more broadly, the entire California Desert. In the areas identified for renewable energy development in eastern Riverside County, some of the many sensitive biological resources at risk include desert tortoise, golden eagle, burrowing owl, Mojave fringe-toed lizard, Nelson's bighorn sheep, and a wide variety of other special-status wildlife. As described in Section 4.3.16, habitat loss and degradation in the Chuckwalla Valley and the NECO planning area has resulted from historical grazing, current and historic agriculture, and military training, among other factors. Fragmentation of habitat from has occurred from highway and aqueduct construction. An increase in predators such as ravens has also contributed to habitat degradation, population declines, and range contractions for many special-status wildlife species (Boarman 2002).

The project site supports habitat for, and in some instances populations of, numerous special-status wildlife species, as described in Section 3.4 (Biological Resources – Wildlife). These include species under federal or state protection, including desert tortoise, golden eagle, burrowing owl, and other special-status species in California. Many of these species occur throughout the geographic scope of the analysis of cumulative impacts, and would be impacted by numerous projects in the cumulative scenario (Section 4.1). The analysis of cumulative impacts to wildlife movement and habitat connectivity (below) expands on the analysis presented in Section 4.4.7, by considering the cumulative impacts of the proposed project, the Desert Sunlight project, and other projects in the area.

Table 4.4-3. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Biological Resources – Wildlife	NECO planning area for most species. Colorado Desert Recovery Unit For the desert tortoise, the geographic scope is the Colorado Desert Recovery Unit, as described in the Revised Recovery Plan for the Mojave Population of the Desert Tortoise	Loss of desert tortoise habitat and connectivity, impacts to sensitive species, impacts to connectivity	All projects within the NECO planning area listed in Table 4.1-1 and 4.1-2 Projects closest to the DHSP site are primarily renewable energy and infrastructure projects, and include • Desert Sunlight Solar Farm Project • SCE Red Bluff Substation • Eagle Mountain Wind Project • Devers-Palo Verde No. 2 Transmission Line Project • Desert Southwest Transmission Line • Desert Center 50 Solar Project • Silverado Project • Palen Solar Energy Project.

As with the vegetation analysis, project impacts related to wildlife could occur during the construction phase of the project, the planned 30-year operational life of the DHSP, and the decommissioning phase. This analysis considers these timeframes.

Cumulative Effects Analysis

There would be no cumulative wildlife impacts under the No Action or No Project Alternatives (Alternatives 1, 3, or A) because there would be no ROW grant for development of the solar farm area and associated facilities, including the gen-tie line. Alternative 2: No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development) could contribute to cumulative wildlife impacts because the CDCA Plan could be amended to allow solar development of the site. However, any future proposals for use of the site would be subject to separate environmental analysis and since such future proposals are unknown at this date, any impacts are also unknown. The remainder of this section addresses the Action Alternatives: Alternatives 4 through 7 and gen-tie alignment Alternatives C through E.

Alternative B would not contribute to cumulative wildlife effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Wildlife Habitat

The development of numerous large-scale projects, such as other solar and wind generation facilities, would result in a substantial permanent conversion of desert habitat to industrial and commercial uses. Existing and foreseeable future projects in the NECO planning area (not including the DHSP) would result in the total projected loss of 4.5 percent of the Sonoran Creosote Bush Scrub (Sonoran Desert Scrub) and 6.5 percent of the Desert Dry Wash Woodland habitat in the NECO planning area (see Section 4.3.16). This would constitute a substantial cumulative impact on these plant communities and wildlife habitat through direct habitat loss and habitat fragmentation. As shown in Table 4.3-6, implementation of Alternatives 4 through 7 would each contribute approximately 0.4 percent to this cumulative impact to Sonoran Creosote Bush Scrub (Sonoran Desert Scrub) and between 0.9 and 1.2 percent to the cumulative impact to Desert Dry

Wash Woodland. Due to the function of these vegetation communities as wildlife habitat, Alternatives 4 through 7 would contribute considerably to cumulative impacts to wildlife habitat.

Gen-tie alignment Alternatives B through E would impact between 85 and 92 acres of wildlife habitat. These acreages are relatively small by comparison with other past, present, and foreseeable future projects. But any gen-tie alternative, in contribution with solar facility Alternative 4, 4, or 5, would contribute further to the project's overall proportion of the substantial cumulative adverse impacts to wildlife habitat. Cumulative impacts to wildlife habitat are discussed in detail Section 4.3.16, under *Native Vegetation Including Sensitive Natural Communities*.

Common Wildlife

The incremental contribution of the proposed project or its alternatives to cumulative impacts to common wildlife, including most resident and migratory birds, would be habitat loss and fragmentation. Existing and foreseeable future projects in the NECO planning area (not including the DHSP) would result in the total projected loss of 4.5 percent of the Sonoran Creosote Bush Scrub (Sonoran Desert Scrub) and 6.5 percent of the Desert Dry Wash Woodland habitat in the NECO planning area (see Section 4.3.16). This would constitute a substantial cumulative impact on habitat for common wildlife species. In addition to habitat loss, the DHSP would contribute to a variety of other direct and indirect cumulative effects to wildlife, including mortality, displacement, increased predation, noise and lighting disturbances, and off-site edge effects to habitat quality. These effects would take place during construction, O&M, and decommissioning of the DHSP and other regional projects. Cumulatively, these effects to common wildlife species are substantial. Most common wildlife species range widely over California, and these species have not been identified as conservation priorities. The proposed project or its alternatives would contribute incrementally to impacts to common wildlife such as disruption of movement, disturbance, mortality, loss of habitat, and fragmentation. With the incorporation of mitigation measures, including MM VEG-1 through MM VEG-9 and MM WIL-1 though MM WIL-8 (see Section 4.4.7), this incremental contribution would be mitigated to the extent feasible and would not result in the loss of a population or a trend toward federal or State listing for any common wildlife species. With incorporated mitigation, the DHSP would not make a considerable contribution to the cumulative regional impacts to common wildlife, when combined with the effects of past and foreseeable future projects in the NECO planning area.

Special-Status Wildlife

Desert Tortoise. The incremental contribution of the proposed project or its alternative to cumulative impacts to desert tortoise would be similar to the impacts of other solar developments in the Colorado Desert Recovery Unit, and would include loss of habitat, interference with regional movement, potential for stress, illness, or mortality from translocation (if tortoises are translocated), and indirect impacts from an increase in predators such as the common raven. Effects to desert tortoise habitat were analyzed using the current USGS Desert Tortoise Habitat Model (Nussear et al. 2009). Table 4.4-4, *Cumulative Effects: Desert Tortoise Habitat*, summarizes the results of this habitat model applied across the Colorado Desert Recovery Unit. The results are stratified by modeled habitat value and presented as acres of habitat and as percentage of all habitat affected. The model is a predictive tool for mapping the potential distribution of desert tortoise habitat and is useful for evaluating land use decisions potentially affecting desert tortoises at a landscape scale. It is not intended to be used, or viewed, as a substitute for ground-

based, site-specific field surveys. Modeled habitat scores reflect a hypothesized habitat potential given the range of environmental conditions where tortoise occurrence was documented. The report (Nussear et al. 2009) emphasizes that:

> *. . . there are likely areas of potential habitat for which habitat potential was not predicted to be high, and likewise, areas of low potential for which the model predicted higher potential. Finally, the map of desert tortoise potential habitat that we present does not account either for anthropogenic effects, such as urban development, habitat destruction, or fragmentation, or for natural disturbances, such as fire, which might have rendered potential habitat into habitat with much lower potential in recent years.*

The USGS Desert Tortoise Habitat Model maps most of Colorado Desert Recovery Unit as medium- to high-quality desert tortoise habitat, with scores of 0.4-0.9 on a scale of 0 to 1 (1 being the highest quality). However, the habitat model ascribes a low quality habitat value (0.0-0.1) to the vast majority of the DHSP footprint. The DHSP's effects on desert tortoise habitat (based on the 2009 USGS habitat model) are quantified in Table 4.4-4. Most of the proposed projects in the Colorado Desert Recovery Unit would impact moderate- to high-quality desert tortoise habitat. The DHSP would primarily impact low-quality habitat. However, the contribution of the proposed project or its alternatives to cumulative habitat loss in connection with other reasonably foreseeable future projects, even for moderate to low-quality desert tortoise habitat, is considered substantial, given the species' decline and the present and future threats.

Table 4.4-4. Cumulative Effects: Desert Tortoise Habitat (acres)

Habitat Value[1]	Desert Tortoise Habitat[1] in Colorado Desert Recovery Unit	Impacts to Habitat from Existing Projects[2]	Impacts to Habitat from Foreseeable Future Projects[3]	Contribution of DHSP to Future Cumulative Impacts
0	487,010	67,028	1,617	Alt 4: 718.6 Alt 5: 675.4 Alt 6: 716.8 Alt 7: 716.8 Alt C: 0 Alt D: 12.6 Alt E: 0
0.1	423,204	9,094	9,198	Alt 4: 484 Alt 5: 481.2 Alt 6: 322.5 Alt 7: 322.5 Alt C: 4.5 Alt D: 27.4 Alt E: 43.7
0.2	479,429	9,288	17,618	Alt 4: 4.6 Alt 5: 4.6 Alt 6: 4.6 Alt 7: 4.6 Alt C: 16.6 Alt D: 4.1 Alt E: 61.7

Table 4.4-4. Cumulative Effects: Desert Tortoise Habitat (acres)

Habitat Value[1]	Desert Tortoise Habitat[1] in Colorado Desert Recovery Unit	Impacts to Habitat from Existing Projects[2]	Impacts to Habitat from Foreseeable Future Projects[3]	Contribution of DHSP to Future Cumulative Impacts
0.3	785,506	11,986	31,621	Alt 4: 0 Alt 5: 0 Alt 6: 0 Alt 7: 0 Alt C: 19.6 Alt D: 17.8 Alt E: 41.1
0.4–0.5	1,035,547	15,885	45,885	Alt 4: 0 Alt 5: 0 Alt 6: 0 Alt 7: 0 Alt C: 18.8 Alt D: 111.5 Alt E: 36.2
0.6–0.7	1,723,734	10,279	51,872	Alt 4: 0 Alt 5: 0 Alt 6: 0 Alt 7: 0 Alt C: 165.2 Alt D: 19.6 Alt E: 40.3
0.8–0.9	2,635,526	9,233	109,567	0
1.0	42,278	71	2,362	0

1 - Based on the USGS Desert Tortoise Habitat Model (Nussear et al. 2009).
2 - Includes only those existing projects for which GIS-based spatial data was available at the time of the analysis.
3 - Includes only BLM Renewables that had submitted a Plan of Development at the time of the analysis and the proposed Silverado Project.

The proposed project or its alternatives would also contribute to a substantial cumulative loss of desert tortoise habitat connectivity among the Chuckwalla and Joshua Tree DWMAs and critical habitat areas, as well as the greater connectivity between the Colorado Desert Recovery Unit and the Western Mojave Recovery Unit. One of the objectives for desert tortoise recovery in the NECO is to "mitigate effects on desert tortoise populations and habitat outside DWMAs to provide connectivity between DWMAs." Maintaining connectivity is particularly important given the threats posed by global climate change, according to the USFWS 2011 Revised Recovery Plan (USFWS 2011a). The cumulative impacts to desert tortoise habitat connectivity, and the contribution of the proposed project or its alternatives to those impacts, are discussed further, under Wildlife Movement and Connectivity, below.

Desert tortoises are likely to inhabit the solar facility site in low numbers (Section 4.4.7). The proposed project or its alternatives would have permanent and long-term impacts to 1,208 acres of habitat at the solar facility site, and 92 acres along the gen-tie line Alternative C alignment. Cumulative impacts to desert tortoise critical habitat are discussed below under *Wildlife Management Areas and Critical Habitat*.

The contribution of the proposed project or its alternatives to the cumulative loss of desert tortoise habitat would be offset through implementation of Mitigation Measure VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat). This measure specifies that compensation habitat will be located within the Colorado Desert Recovery Unit in areas that

have potential to contribute to desert tortoise habitat connectivity and build linkages between desert tortoise designated critical habitat, known populations of desert tortoise, or other preserve land. Other desert-tortoise-specific mitigation measures required to address the impacts of the proposed project or its alternatives to desert tortoises, including the contribution to cumulative effects, are described in Section 4.4.7.

Mojave Fringe-Toed Lizard. The development of previous, current, and foreseeable future projects would result in substantial cumulative adverse impacts to Mojave fringe-toed lizard habitat (dune systems, sandfields, and other aeolian sand habitats). Cumulative impacts include the direct loss of these habitats, as well as the adverse impacts of interrupted sand transport. Existing projects in the NECO planning area (not including the DHSP) account for a loss of about 2.5 percent of sand dune habitat in the NECO Planning Area (Table 4.3-6), and foreseeable future projects would contribute slightly (128 acres) to this loss. But these acreages do not account for effects of interrupted sand transport. Some projects have been redesigned or relocated to avoid or minimize these impacts, reducing the severity of future contributions to the overall cumulative impact. The solar facility site and most of the alternative gen-tie alignments would not affect Mojave fringe-toed lizard or its habitat. Gen-tie Alternative E, however, would cross occupied MFTL habitat over a portion of its alignment in the dune system at the base of the Coxcomb Mountains. It would impact 7 acres of Mohave fringe-toed lizard habitat (Table 4.3-2) for access road and transmission line construction. None of the project alternatives would cause appreciable interruption to aeolian sand transport or deposition. Mitigation measures described in Section 4.4.7 and Section 4.4.15 would minimize potential adverse impacts to Mojave fringe-toed lizard and its habitat during transmission line work, if Alternative E is selected. If the proposed project or its alternatives causes an increase in predators such as the common raven due to food, water, perching, and nesting habitat subsidies, then these indirect project impacts could affect the off-site Mojave fringe-toed lizard population and contribute to regional cumulative effects. Mitigation Measure WIL-8 would require a Raven Monitoring, Management, and Control Plan to prevent or minimize project-related increases in raven populations. With incorporation of the mitigation measures, the proposed project's incremental contribution to loss of habitat and other adverse impacts to Mojave fringe-toed lizard would not be substantial.

Golden Eagle. The proposed project or its alternatives would contribute to the cumulative regional loss of golden eagle foraging habitat. The project site does not provide suitable golden eagle nesting habitat, but there are several golden eagle nesting territories within a 10-mile radius (BLM 2011). Most nesting areas are in the desert mountain ranges and are not likely to be directly affected by the majority of projects listed in the cumulative scenario. The entire solar facility site and each of the gen-tie line alternatives provide potential foraging habitat and are within foraging range of known or potential nest sites. Other renewable developments, both existing and proposed, in the NECO planning area would have similar impacts, and cumulatively, development in the California deserts would have substantial impacts to golden eagle foraging habitat. Desert shrubland vegetation throughout the NECO Planning Area provides suitable foraging habitat for golden eagles, during breeding, wintering, or migratory seasons. Cumulative impacts to this habitat are summarized in Section 4.3-14, including Table 4.3-6. The adverse cumulative effects of existing and foreseeable future projects (not including the proposed project) to foraging habitat are substantial. The proposed project or its alternatives would contribute at least incrementally to the cumulative loss of golden eagle foraging habitat. Implementation of mitigation measures described in Section 4.4.7 would minimize project impacts to

golden eagle foraging habitat. Mitigation Measure VEG-6, which would require compensatory land acquisition, would mitigate project-specific loss of foraging habitat. Mitigation Measures WIL-5 (Golden Eagle Pre-construction and Construction Phase Surveys) and MM WIL-6 (Bird and Bat Conservation Strategy) would require acquisition of additional data on golden eagle habitat use in the area, and preparation and implementation of a conservation strategy, to include minimization of potential impacts to golden eagles, and including adaptive management actions. With implementation of these measures, the contribution of the proposed project or its alternatives to cumulative impacts to golden eagles would be reduced or offset.

Burrowing Owl. The proposed project or its alternatives would contribute incrementally to the cumulative loss of burrowing owl wintering habitat and possibly breeding habitat. While no burrows with sign were identified on the solar facility site, 2 burrowing owls were observed during field studies outside the breeding season. Habitat on the site and along most of the gen-tie alternative alignments appears suitable for nesting and wintering. Impacts of the proposed project or its alternatives would be similar to other solar developments in the region, and could include loss of breeding or wintering habitat, disturbance due to human activities, and destruction of active (nesting or wintering) burrows. Desert shrubland vegetation throughout much of the NECO Planning Area provides suitable wintering or breeding habitat for burrowing owls. Cumulative impacts to this habitat are summarized in Section 4.3-14, including Table 4.3-6. The adverse cumulative effects of existing and foreseeable future projects (not including the proposed project) to burrowing owl habitat are substantial. The proposed project or its alternatives would contribute at least incrementally to the cumulative loss of burrowing owl habitat. However, due to the low level of use, and an apparent rarity of breeding on-site, the incremental contribution of the proposed project or its alternatives to cumulative impacts to burrowing owls would be minor. Implementation of mitigation measures described in Section 4.4.7 would reduce or offset the contribution of the proposed project or its alternatives to cumulative impacts.

Other Special-Status Birds. The proposed project or its alternatives would contribute incrementally to the cumulative loss of habitat for several special-status birds, described in Section 4.4.7. The primary impacts of the proposed project or its alternatives to resident and migratory birds include habitat loss, disturbance to foraging and breeding, and risk of injury or mortality due to collision with project features. Desert shrubland vegetation throughout the NECO Planning Area provides suitable habitat for special status birds. Cumulative impacts to this habitat are summarized in Section 4.3-14, including Table 4.3-6. The adverse cumulative effects of existing and foreseeable future projects (not including the proposed project) to these habitats are substantial. The proposed project or its alternatives would contribute at least incrementally to the cumulative loss of special-status bird habitat. This contribution would be further reduced or offset by the implementation of mitigation measures described in Section 4.4.7.

Special-Status Bats. Special-status bats of the local area are discussed in Section 4.4.7. Bats may forage over the project area, and may be drawn to the area by the storage ponds (during construction) or the evaporation pond (during O&M). Due to the lack of extensive or high-quality roosting habitat in or near the project area, and the widespread availability of similar foraging habitat in the Chuckwalla Valley and beyond, the incremental contribution of the proposed project or its alternatives to cumulative impacts to bats would be minor. This contribution would be further reduced by the implementation of mitigation measures described in Section 4.4.7.

American Badger and Desert Kit Fox. The proposed project or its alternatives would contribute incrementally to the cumulative loss and fragmentation of habitat for badgers and desert kit fox. These impacts are similar to impacts that would result from other past and foreseeable future developments within the NECO planning area. Desert shrubland vegetation throughout much of the NECO Planning Area provides suitable habitat for both species. Cumulative impacts to this habitat are summarized in Section 4.3-14, including Table 4.3-6. The adverse cumulative effects of existing and foreseeable future projects (not including the proposed project) to American badger and desert kit fox habitat are substantial. Because of the presence of kit fox and badgers on site, and the fact that future projects are planned adjacent to or near the DHSP to the north and south that would also remove habitat and other direct impacts (described for Section 4.4.7), the cumulative impacts to badgers and kit fox in the Chuckwalla Valley would be substantial. The contribution of the proposed project or its alternatives to these impacts would be reduced or offset by implementing mitigation measures described in Section 4.4.7, including Mitigation Measure WIL-7 **(**Desert Kit Fox and American Badger Impact Avoidance).

Nelson's Bighorn Sheep, Burro Deer, and Yuma Mountain Lion. The project site and surrounding valley floor provides marginally suitable foraging habitat that these species may use infrequently for foraging or for movement among surrounding mountain ranges. Cumulative impacts to these habitat values, particularly movement, are substantial (below). The project's contribution to habitat loss and expected off-site impacts such as noise, lighting, and disturbance would be minimized or offset by implementing mitigation measures described in Section 4.4.7. The cumulative impacts to wildlife movement, and the contribution of the proposed project or its alternatives to those impacts, are discussed further, below.

Wildlife Movement and Habitat Connectivity

The solar facility site is located roughly midway between the three mountain ranges that surround the upper Chuckwalla Valley. It is immediately south of the recently approved Desert Sunlight Project site and north of the proposed Silverado Project. Wildlife movement among the mountain ranges surrounding the Chuckwalla Valley is restricted by the Colorado River Aqueduct and large containment berms north of it, the disused Kaiser rail line on the west side of the Valley, and I-10 at the south of the Valley, but north of the Chuckwalla Mountains (see Section 3.4, including Figure 3.4-3 in Appendix A). These existing features restrict movement for all terrestrial species, including desert tortoise. The solar facility site presently contributes to suitable wildlife movement routes through the Valley, particularly for southwest to northeast movement between the Chuckwalla DWMA (west of the site) and the Coxcomb Mountains. Project construction would eliminate movement opportunities across the site for most wildlife species. The project's impacts to wildlife movement would be offset through implementation of Mitigation Measure VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat), which requires habitat compensation at a 1:1 ratio to contribute to general wildlife movement and population connectivity for Nelson's bighorn sheep and desert tortoise populations.

In addition to the project's individual impacts, much of the suitable movement habitat in the Chuckwalla Valley north of I-10 would be degraded or eliminated by construction of other approved or proposed projects. At least 6 other large-scale renewable energy projects have been approved or proposed in this portion of the Chuckwalla Valley (see Figure 4.4-1 in Appendix A). Desert Sunlight, now under construction, would largely prevent movement from the DHSP site

northward and would eliminate much of the suitable movement habitat north of the DHSP. These new industrial land uses would eliminate habitat and exclude most wildlife from each project site, further restricting wildlife movement in the region. The USFWS (2011b) identifies a series of recently approved projects in the I-10 corridor, and concludes that:

> *The collective effect of these various project approvals has 1) reduced the number of opportunities for desert tortoises to cross the I-10 corridor and maintain landscape-level population connectivity between the Mojave and Colorado portions of the species' range; and 2) likely reduced desert tortoise population densities in portions of the [Desert Sunlight] action area, which reduces the extent of population connectivity to an unknown degree. Consequently, we [USFWS] conclude that the environmental baseline against which the effects of the proposed [Desert Sunlight] project are analyzed include habitat areas have been degraded by existing land uses and will experience additional reductions once projects that have been approved are constructed.*

These impacts to wildlife movement, including connectivity among desert tortoise population and habitat areas, are cumulatively substantial. The USFWS BO for the Desert Sunlight project (2011b) requires acquisition and management of lands within the I-10 corridor as mitigation for that project's impacts to habitat connectivity. The contribution of the proposed project or its alternatives to the cumulative impacts to wildlife movement would be mitigated in part, as described above, including provisions in Mitigation Measure VEG-6 that would require habitat acquisition in the I-10 corridor.

Even with this mitigation, the residual cumulative effects to habitat connectivity within the upper Chuckwalla Valley would be substantial due to the loss of wildlife movement habitat across existing the site and other existing, approved, or foreseeable future project sites. However, the DHSP project site is modeled as low habitat value (Nussear et al. 2009), has low density of tortoises and their sign (Section 3.4), much of the local habitat has been disturbed and fragmented, and the most important desert tortoise movement habitat in the area lies west of the project footprint. Therefore, the contribution of the proposed project or its alternatives would be relatively minor (Section 4.4.7).

Wildlife Management Areas

The development of numerous large-scale projects, such other wind and solar generation facilities, would result in a substantial permanent conversion of desert habitat to industrial/commercial uses. This would result in substantial adverse cumulative impacts to wildlife management areas due to habitat loss from ground disturbance and the direct and indirect off-site impacts described in Section 4.4.7, including noise, lighting, dust, and invasive weeds. The direct effects of the proposed project and alternatives are described in Sections 4.4.4 through 4.4.15. The NECO plan allows for development of 1 percent of the BLM-administered land within the Chuckwalla DWMA (465,287 acres; 1 percent is 4,653 acres). The development of 2 or 4 acres (under Alternatives B/C and D, and E, respectively), would represent a small percentage of the allowable development within the DWMA (less than 0.01 percent). However, due to the importance of designated DWMAs and CHUs to desert tortoise and other wildlife, even relatively small impacts to these areas are important. According to Mitigation Measure VEG-6, these impacts would be mitigated at a 5:1 compensation ratio and a proportion of this compensation habitat (at least a 1:1 ratio) would be within the I-10 corridor, which also is within

the Chuckwalla DWMA and CHU. In consideration of the NECO Plan's limitations on future development within DWMAs the cumulative impacts to these wildlife management areas will not be substantial and the contribution of the project or alternatives to the cumulative habitat loss within these wildlife management areas also would not be substantial.

Under several of the alternatives, the project would create adverse impacts to the Palen-Ford WHMA. The 46 acres of the WHMA that are within the DHSP project site are isolated from the remainder of the WHMA and key WHMA resources, including the dunes and playa system to the east, by the intervening DSSF project now under construction (see Figures 3.1-1 and 3.4-1). The functionality of this portion of the WHMA is thus reduced in the context of the WHMA as a whole. As a result, the effects of the DHSP on this portion of the WHMA would be diminished by its configuration, and the contribution of the project to cumulative impacts on the WHMA would not be substantial.

4.4.17 CEQA Considerations

This section is included in this EIS and CDCA Plan Amendment for future use by CEQA Lead and Responsible agencies and is not required under NEPA.

CEQA Significance Criteria

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. They are used to determine whether the proposed project or alternatives would result in significant impacts under CEQA related to wildlife biological resources. The proposed project and alternatives would result in a significant impact related to wildlife biological resources if they would:

WIL-1 Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS;

WIL-2 Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

WIL-3 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

WIL-4 Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan

CEQA Significance Determination

Alternative 1. Under Alternative 1, the DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, the project would not be constructed and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan. It is expected that the site would remain in its existing condition, with no new structures or facilities constructed or operated and no project-related ground disturbance. No significant impacts to wildlife resources would result from Alternative 1. Alternative 1 would not contribute to any significant cumulative impact.

Alternative 2. Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the project would not be constructed and BLM would manage the site consistent with the amended land use designation in the CDCA Plan. Any future project would be reviewed under a separate NEPA analysis. No significant impacts to wildlife resources would result from the DHSP. Alternative 2 would not contribute to any significant cumulative impact to wildlife resources.

Alternative 3. Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the project would not be constructed and BLM would manage the site consistent with the amended land use designation in the CDCA Plan. Any future project would be reviewed under a separate NEPA analysis. No significant impacts to wildlife resources would result from the DHSP. Alternative 2 would not contribute to any significant cumulative impact to wildlife resources.

Alternative 4. Under Alternative 4, the Applicant's proposed project, the direct and indirect impacts of project construction, O&M, and decommissioning to wildlife resources, including wildlife habitat and special-status wildlife species, would be as described in Section 4.4.7. These impacts would be significant under criteria WIL-1 (impacts to special-status wildlife and habitat, including listed threatened or endangered species) and WIL-2 (interfere substantially with the movement of native wildlife species). With implementation of Mitigation Measures VEG-1 through MM VEG-9 and MM WIL-1 through MM WIL-8, these impacts to wildlife resources would be mitigated to less-than-significant levels under CEQA by minimizing habitat impacts to the extent practicable, mitigating direct impacts to special-status wildlife, avoiding impacts to nesting and migratory birds, controlling potential subsidies for ravens or other predators, providing for long-term conservation and management of native habitat on compensation lands, and other actions as described above. Adverse residual impacts (Section 4.4.7) would remain, but would be less than significant and there would be no unavoidable significant impacts under the CEQA criteria.

The cumulative impacts of existing and reasonably foreseeable development to special-status wildlife and habitat (including listed threatened or endangered species), and wildlife movement, are significant within the region (criteria WIL-1 and WIL-2). The individual contributions of Alternative 4 to these cumulative effects would be minor and mitigated in part through mitigation measures described in Sections 4.3.7 and 4.4.7, particularly Mitigation Measures VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat). Even with implementation of mitigation, the residual impacts of Alternative 4 would have a cumulatively considerable contribution to significant habitat loss for special-status wildlife species in the NECO planning area, and reduced wildlife movement and connectivity in the upper Chuckwalla Valley. Therefore, cumulative impacts would remain significant and unavoidable under criteria WIL-1 and WIL-2.

There would be no significant impacts, at either the project level or cumulatively, under criteria WIL-3 and WIL-4 because Alternative 4 would be consistent with local plans and policies (i.e., the County of Riverside General Plan), and there are no habitat conservation plans in the project area.

Alternative 5. Since the direct, indirect, and cumulative impacts to wildlife resources for Alternative would be substantially the same as those described for Alternative 4, as explained above, those effects would be mitigated to less-than-significant levels under CEQA. Similarly, Alternative 5 would contribute considerably to the cumulatively significant impacts of habitat loss for special-status wildlife species in the NECO planning area, and reduced wildlife movement and connectivity in the upper Chuckwalla Valley. There would be no significant impacts, at either the project level or cumulatively, under criteria WIL-3 and WIL-4 because Alternative 5 would be consistent with local plans and policies (i.e., the County of Riverside General Plan), and there are no habitat conservation plans in the project area.

Alternative 6. Under Alternative 6, the direct, indirect, and cumulative impacts to wildlife resources would be as described for Alternative 4. The direct and indirect impacts of Alternative 6 would be mitigated to less-than-significant levels under CEQA. However, Alternative 6 would contribute considerably to the cumulatively significant impacts of habitat loss for special-status wildlife species in the NECO planning area, and reduced wildlife movement and connectivity in the upper Chuckwalla Valley. There would be no significant impacts, at either the project level or cumulatively, under criteria WIL-3 and WIL-4 because Alternative 6 would be consistent with local plans and policies (i.e., the County of Riverside General Plan), and there are no habitat conservation plans in the project area.

Alternative 7. Under Alternative 7, the direct, indirect, and cumulative impacts to wildlife resources would be as described for Alternative 4. The direct and indirect impacts of Alternative 7 would be mitigated to less-than-significant levels under CEQA. However, Alternative 7 would contribute considerably to the cumulatively significant impacts of habitat loss for special-status wildlife species in the NECO planning area, and reduced wildlife movement and connectivity in the upper Chuckwalla Valley. There would be no significant impacts, at either the project level or cumulatively, under criteria WIL-3 and WIL-4 because Alternative 6 would be consistent with local plans and policies (i.e., the County of Riverside General Plan), and there are no habitat conservation plans in the project area.

Alternative A. Under Alternative A, no gen-tie line would be approved by the BLM, and BLM would not amend the CDCA Plan. The proposed gen-tie line would not be constructed and BLM would continue to manage the ROW consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended (including the Desert Sunlight amendment). It is expected that the Desert Sunlight gen-tie line would be built within the ROW, and that impacts to vegetation resources would be as described in the Desert Sunlight Solar Farm Project EIS (BLM 2011). No significant impacts to vegetation resources would result from Alternative A. Alternative A would not contribute to any significant cumulative impact, as defined in CEQA.

Alternative B. Under Alternative B, the direct and indirect impacts of gen-tie line construction, operation, and decommissioning to wildlife resources, as described in Section 4.4.12, would be significant under CEQA criterion WIL-1 (impacts to special status wildlife and habitat). With implementation of Mitigation Measures VEG-1 through MM VEG-9 and MM WIL-1 through MM WIL-8, these impacts to wildlife resources would be mitigated to less-than-significant levels under CEQA by minimizing habitat impacts to the extent practicable, mitigating direct impacts to special-status wildlife, avoiding impacts to nesting and migratory birds, controlling potential subsidies for ravens or other predators, providing for long-term conservation and management of native habitat on compensation lands, and other actions as described above.

Adverse residual impacts (described in Section 4.4.7) would remain, but would be less than significant and there would be no unavoidable significant impacts under the CEQA criteria.

Alternative B would not contribute to cumulative wildlife effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

There would be no significant impacts, at either the project level or cumulatively, under criteria WIL-3 and WIL-4 because Alternative B would be consistent with local plans and policies (i.e., the County of Riverside General Plan), and there are no habitat conservation plans in the project area.

Alternative C. Under Alternative C, the direct and indirect impacts of gen-tie line construction, operation, and decommissioning to wildlife resources would be as described for Alternative B. The direct and indirect impacts of Alternative C would be mitigated to less-than-significant levels under CEQA. The contribution of Alternative C to cumulative impacts would be greater than for Alternative B, due to its construction on separate structures from the Desert Sunlight gen-tie line. However, this would not be a considerable contribution, in terms of CEQA. There would be no significant impacts, at either the project level or cumulatively, under criteria WIL-3 and WIL-4 because Alternative C would be consistent with local plans and policies (i.e., the County of Riverside General Plan), and there are no habitat conservation plans in the project area.

Alternative D. Under Alternative D, the direct and indirect impacts of gen-tie line construction, operation, and decommissioning to wildlife resources would be as described for Alternative B. The direct and indirect impacts of Alternative D would be mitigated to less-than-significant levels under CEQA. The contribution of Alternative D to cumulative impacts would be greater than for Alternative B, due to its construction of separate support structures for the gen-tie line. However, this would not be a considerable contribution, in terms of CEQA. There would be no significant impacts, at either the project level or cumulatively, under criteria WIL-3 and WIL-4 because Alternative D would be consistent with local plans and policies (i.e., the County of Riverside General Plan), and there are no habitat conservation plans in the project area.

Alternative E. Under Alternative E, the direct and indirect impacts of gen-tie line construction, operation, and decommissioning to wildlife resources would be as described for Alternative B. The direct and indirect impacts of Alternative E would be mitigated to less-than-significant levels under CEQA. The contribution of Alternative E to cumulative impacts would be greater than for Alternative B, due to its construction of separate structures for the gen-tie line. However, this would not be a considerable contribution, in terms of CEQA. There would be no significant impacts, at either the project level or cumulatively, under criteria WIL-3 and WIL-4 because Alternative E would be consistent with local plans and policies (i.e., the County of Riverside General Plan), and there are no habitat conservation plans in the project area.

4.5 CLIMATE CHANGE

4.5.1 Methodology for Analysis

This section addresses the effects of greenhouse gas emissions (GHGs) from the Desert Harvest Solar Project (DHSP), as well as the consistency of the proposed project and alternatives with the applicable plans and programs that have been implemented by various federal, state, and local agencies with jurisdiction over the project area. The CEQ published draft guidance in February 2010 for federal agencies to consider the direct and indirect greenhouse gas emissions from proposals for federal actions under NEPA and to quantify and disclose those emissions in the environmental document (Council on Environmental Quality, Draft NEPA Guidance, dated February 18, 2010). The draft guidance provides practical tools for agency reporting, including a presumptive threshold of 25,000 metric tons of carbon dioxide equivalent (MTCO2e) annual emissions from the proposed project to trigger a quantitative analysis.

Potential GHG emissions from construction and operation, including avoided GHG emissions associated with displaced fossil-fuel fired electricity generation, are estimated quantitatively to evaluate the proposed project and alternatives. Climate change effects are long-term, global, and cumulative in nature. Therefore, the GHG emissions impacts described in this section analyze the potential for long-term cumulative effects.

4.5.2 Applicant Measures

No applicant measures are proposed.

4.5.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects from the project would not occur.

4.5.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site, and BLM would manage the site consistent with the amended land use designation in the CDCA Plan. No effects from the DHSP would occur.

4.5.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a

result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.5.6 Alternative 4 – Proposed Solar Project

As a solar energy project, the project would have no primary direct CO_2 emissions from electricity production during operation, but direct GHG emissions during operation would result from the use of off-road equipment and on-road vehicles used for inspection and maintenance and possible minor leakage from sulfur hexafluoride (SF_6) containing electrical equipment. The project is likely to avoid GHG emissions due to the displacement of electricity generated by fossil fuel-fired power plants, offset by a small increase in GHG emissions due to the loss of carbon uptake from the removal of vegetation at the project site.

Construction

Direct GHG emissions during construction would be generated from use of off-road equipment (such as graders, cranes, and excavators) and from on-road construction vehicle trips (such as heavy haul trips for solar panels and other construction materials like water and aggregate and cement for concrete production, as well as construction employee commuting).

Direct Effects

Estimated direct construction GHG emissions for the project, including the secondary direct emissions from off-site construction trips, are presented in Table 4.5-1. Detailed assumptions are included in Appendix D.

Table 4.5-1. Total Construction Period CO_2 Emissions, Alternative 4 – Proposed Solar Project

	MTCO2e
On-road Vehicle Emissions	9,454.78
Off-road Construction Equipment Emissions	19,928.21
Total	29,382.99

Source: Aspen Analysis, See Appendix D for detailed modeling assumptions and emission estimates.
Note: The total emissions are for the entire 24-month construction period.

The SCAQMD established an interim GHG threshold that considers construction emissions as amortized over 30 years for the service lifetime of a project. Assuming that the project would serve 30 years, the equivalent annual average GHG emissions over the 30-year project life would be 979.43 MTCO2e/year for construction of the DHSP.

Indirect Effects

There would be no indirect effects associated with Alternative 4 during construction.

Operation and Maintenance

Operation activities would include routine maintenance of the solar farm facilities, washing the solar panels, removing noxious weeds, and roads maintenance. Routine maintenance includes torque electrical fittings, cleaning switch gear, calibrating protective relays, fire protection sys-

tem test and annual certification, and fuse swapping and testing ground fault detection and power quality. In order to perform these operation and maintenance activities, the project would require 16 full-time staff and 4 pickup trucks on-site.

Direct Effects

The estimated direct operation GHG emissions related to Alternative 4, including the emissions from employee trips, on-site truck trips, other maintenance and operation activities, are presented in Table 4.5-2. Also presented in this table is the project life amortized construction GHG emissions and an estimate of the GHG emissions displaced from the electrical production of Alternative 4.

Table 4.5-2. Annual Operation Emissions, Alternative 4 – Proposed Solar Project

	MTCO2e per year
Employee and O&M Vehicle Emissions	522.62
Amortized Construction Emissions	979.43
Total Annualized Direct Emissions	1,502.05
Displaced Annual GHG Emissions	(92,670)
Net Project Annual GHG Emissions	(91,168)

Source: Aspen Analysis, See Appendix D for detailed modeling assumptions and emission estimates.

Total annualized direct GHG emissions are expected to be well below the presumptive threshold for direct emissions of 25,000 MTCO2e/year established in the Council on Environmental Quality's (CEQ's) draft guidance for federal agencies. Therefore, the project would not result in an unavoidable adverse GHG effects.

Indirect Effects

The capacity of Alternative 4 is 150 MW. Based on the project expected generation of over 300,000 MWh annually and a system-wide GHG emission factor of 681 lbs CO2e/MWh for electricity provided by California utilities (USEPA 2011) including SCE, the energy produced by the project would displace 92,670 MTCO2e/year that would otherwise be emitted by power plants currently generating electricity for the California system. Because this would be an indirect effect of the project, the exact nature and location of such reductions is not known, and the magnitude of reductions would diminish over time as the system-wide GHG emission factor would decrease with increased renewable energy in California's generation profile.

The project would cause the clearing of land and removal of vegetation, which would reduce the ongoing natural carbon uptake by vegetation. A study of the Mojave Desert indicated that the desert may uptake carbon in amounts as high as 100 grams per square meter per year (Wohlfahrt et al. 2008). This would equate to a maximum reduction in carbon uptake, calculated as CO_2, of 1.48 MT tons of CO_2 per acre per year for areas with complete vegetation removal. For this project, which would require 1,208 acres of permanently disturbed areas of vegetation removal, the equivalent loss in carbon uptake would be 1,776 MTCO2e/year, which would be negligible in comparison to other effects of the project on CO_2 emissions.

Decommissioning

At the end of the life of Alternative 4, above-ground structures would be removed and demolished, and the site would be returned to its original condition. Required decommissioning activities and equipment would be similar to those for project construction.

Direct Effects

Decommissioning would require removal of the solar panels, towers, and electrical collection system and transporting all components off site. After removal of equipment and facilities, the site would need to be re-vegetated. Equipment used for decommissioning would generally be similar to that used for construction, but the overall activity necessary during decommissioning would be much less than that of construction. Since decommissioning would occur after at least 30 years of operation, it is likely that equipment engine technology would be more advanced and fuels would be cleaner. Therefore, it is anticipated that GHG emissions generated from decommissioning would be similar to or more likely less than those from construction estimated in Table 4.5-1, and the environmental effects of the GHG emissions would be comparable.

Indirect Effects

There would be no indirect effects associated with the project during decommissioning.

Mitigation Measures

Alternative 4 would result in avoided GHG emissions associated with displaced fossil fuel power generation, and GHG emissions associated with facility construction and operations would not cause adverse effects. Accordingly, no climate change/GHG emissions mitigation measures are required.

Residual Impacts and Unavoidable Adverse Effects

Alternative 4 would have no residual impacts and no unavoidable adverse effects related to climate change.

4.5.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA). Alternative 5 would encompass 1,161 acres and the areas cleared of vegetation would be the same as for Alternative 4, 107 acres.

Construction

Construction components of Alternative 5 would be identical to those of Alternative 4.

Direct Effects

Alternative 5 would require slightly less construction materials and related truck trips, and possibly slightly fewer construction workers than Alternative 4; however, the difference would be minimal. Therefore, Alternative 5 would generate slightly less GHG emissions, but the GHG/ climate change effects under Alternative 5 would be essentially the same as those effects under Alternative 4.

Indirect Effects

There would be no indirect effects associated with Alternative 5 during construction.

Operation and Maintenance

Operation and maintenance activities under Alternative 5 would be almost identical to those under Alternative 4.

Direct Effects

Similar to Alternative 4, emission sources for Alternative 5 operation would be limited to maintenance activities and vehicles trips required for operation/maintenance. Therefore, operation emissions would be substantially less than construction emissions. GHG/climate change effects during Alternative 5 would be similar to those effects during Alternative 4; therefore operation of Alternative 5 would not result in an unavoidable adverse effect.

Indirect Effects

Similar to Alternative 4, electricity produced by Alternative 5 would displace electricity generated from other power plants currently generating electricity for the California system. Indirect GHG/Climate Change effects during operation of Alternative 5 would be identical to those during operation of Alternative 4.

Decommissioning

Decommissioning under Alternative 5 would be essentially the same as decommissioning under Alternative 4, except that the area that would be re-vegetated would be smaller due to the smaller disturbance acres.

Direct Effects

Required decommissioning activities and equipment under Alternative 5 would be similar to those described under Alternative 4. Alternative 5 would require slightly less equipment use due to the smaller disturbance area subject to re-vegetation during decommissioning. However, the difference would be minimal and effects of Alternative 5 decommissioning would be essentially identical to those of Alternative 4 decommissioning.

Indirect Effects

There would be no indirect effects associated with Alternative 5 during decommissioning.

Mitigation Measures

Similar to Alternative 4, Alternative 5 would result in avoided greenhouse gas emissions associated with displaced fossil fuel power generation, and greenhouse gas emissions associated with facility construction and operations would not cause adverse effects. Accordingly, no climate change/GHG emissions mitigation measures are required.

Residual Impacts and Unavoidable Adverse Effects

Alternative 5 would have no residual impacts and no unavoidable adverse effects related to climate change.

4.5.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would exclude the 155-acre southern parcel of the project as well as some minor portions of the northern parcel where sensitive plants are located. Alternative 6 would encompass 1,044 acres and the areas cleared of vegetation would be slightly less than those for Alternative 4.

Construction

Construction components of Alternative 6 would be identical to those of Alternative 4.

Direct Effects

Alternative 6 would require slightly less construction materials and related truck trips, and possibly slightly fewer construction workers than Alternative 4; however, the difference would be minimal. Therefore, Alternative 6 would generate slightly less GHG emissions, but the GHG/climate change effects under Alternative 6 would be essentially the same as those effects under Alternative 4.

Indirect Effects

There would be no indirect effects associated with Alternative 6 during construction.

Operation and Maintenance

Operation and maintenance activities under Alternative 6 would be almost identical to those under Alternative 4.

Direct Effects

Similar to Alternative 4, emission sources for Alternative 6 operation would be limited to maintenance activities and vehicles trips required for operation/maintenance. Therefore, operation emissions would be substantially less than construction emissions. GHG/climate change effects during Alternative 6 would be similar to those effects during Alternative 4; therefore operation of Alternative 6 would not result in an unavoidable adverse effect.

Indirect Effects

Similar to Alternative 4, electricity produced by Alternative 6 would displace electricity generated from other power plants currently generating electricity for the California system. Indirect GHG/climate change effects during operation of Alternative 6 would be similar to those during operation of Alternative 4.

Decommissioning

Decommissioning under Alternative 6 would be essentially the same as decommissioning under Alternative 4, except that the area that would require re-vegetation would be smaller due to the smaller disturbance acres.

Direct Effects

Required decommissioning activities and equipment under Alternative 6 would be similar to those described under Alternative 4. Alternative 6 would require slightly less equipment use due to the smaller disturbance area subject to re-vegetation during decommissioning. However, the difference would be minimal and effects of Alternative 6 decommissioning would be essentially identical to those of Alternative 4 decommissioning.

Indirect Effects

There would be no indirect effects associated with Alternative 6 during decommissioning.

Mitigation Measures

Similar to Alternative 4, Alternative 6 would result in avoided greenhouse gas emissions associated with displaced fossil fuel power generation, and greenhouse gas emissions associated with facility construction and operations would not cause adverse effects. Accordingly, no climate change/GHG emissions mitigation measures are required.

Residual Impacts and Unavoidable Adverse Effects

Alternative 6 would have no residual impacts and no unavoidable adverse effects related to climate change.

4.5.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet.

Construction

Construction components of Alternative 7 would be identical to those of Alternative 4.

Direct Effects

Alternative 7 would require slightly less construction materials and related truck trips, and possibly slightly fewer construction workers than Alternative 4; however, the difference would be minimal. Therefore, Alternative 7 would generate slightly less GHG emissions, but the GHG/climate change effects under Alternative 7 would be essentially the same as those effects under Alternative 4.

Indirect Effects

There would be no indirect effects associated with Alternative 7 during construction.

Operation and Maintenance

Operation and maintenance activities under Alternative 7 would be almost identical to those under Alternative 4.

Direct Effects

Similar to Alternative 4, emission sources for Alternative 7 operation would be limited to maintenance activities and vehicles trips required for operation/maintenance. Therefore, operation emissions would be substantially less than construction emissions. GHG/climate change effects during Alternative 7 would be similar to those effects during Alternative 4; therefore operation of Alternative 7 would not result in an unavoidable adverse effect.

Indirect Effects

Similar to Alternative 4, electricity produced by Alternative 7 would displace electricity generated from other power plants currently generating electricity for the California system. Indirect GHG/climate change effects during operation of Alternative 7 would be similar to those during operation of Alternative 4.

Decommissioning

Decommissioning under Alternative 7 would be essentially the same as decommissioning under Alternative 4, except that the area that would require re-vegetation would be smaller due to the smaller disturbance acres.

Direct Effects

Required decommissioning activities and equipment under Alternative 7 would be similar to those described under Alternative 4. Alternative 7 would require slightly less equipment use due to the smaller disturbance area subject to re-vegetation during decommissioning. However, the difference would be minimal and effects of Alternative 7 decommissioning would be essentially identical to those of Alternative 4 decommissioning.

Indirect Effects

There would be no indirect effects associated with Alternative 7 during decommissioning.

Mitigation Measures

Similar to Alternative 4, Alternative 7 would result in avoided greenhouse gas emissions associated with displaced fossil fuel power generation, and greenhouse gas emissions associated with facility construction and operations would not cause adverse effects. Accordingly, no climate change/GHG emissions mitigation measures are required.

Residual Impacts and Unavoidable Adverse Effects

Alternative 7 would have no residual impacts and no unavoidable adverse effects related to climate change.

4.5.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated as part of the proposed project. Therefore, no climate change/GHG effects related to construction, operations and maintenance, or decommissioning would occur.

Mitigation Measures

No mitigation measures for climate change/GHG effects are required for Alternative A.

Residual Impacts and Unavoidable Adverse Effects

No climate change/GHG residual impacts or unavoidable adverse effects would result from the implementation of Alternative A.

4.5.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Alternative B would utilize transmission infrastructure developed for First Solar's Desert Sunlight Solar Farm Project (DSSF) by sharing the approved transmission towers. Stringing of the Applicant's gen-tie line would commence in October 2012 and be completed in February 2013. However, since this construction had not yet begun in September 2011, this analysis assumes that Alternative B would require all related construction activities.

Construction

Construction of Alternative B would cause both temporary and permanent disturbance within a construction corridor estimated at a width of 160 feet, plus additional fan-shaped areas at each turn in the alignment with radii of 450 feet needed for wire stringing. The permanent disturbance associated with Alternative B would be limited to the foundations of the transmission structures, the footprint of the access road, and two 75-foot-by-200-foot areas associated with each fan-shaped stringing area, as described previously.

Direct Effects

Estimated direct construction GHG emissions for Alternative B, including the secondary direct emissions from off-site construction trips, are presented in Table 4.5-3. Detailed assumptions are included in Appendix D.

Table 4.5-3. Total Construction Period CO_2 Emissions, Alternative B – Proposed Gen-Tie (Shared Towers)

	MTCO2e
On-road Vehicle Emissions	940.74
Off-road Construction Equipment Emissions	351.19
Total	1,291.93

Source: Aspen Analysis, See Appendix D for detailed modeling assumptions and emission estimates.
Note: The total emissions are for the entire construction duration.

Assuming that the project would serve 30 years, the annual average GHG emissions over the 30-year project life would be 43.06 MTCO2e/year.

Indirect Effects

There would be no indirect effects associated with Alternative B during construction.

Operation and Maintenance

DHSP operations and maintenance personnel would perform periodic maintenance of the gen-tie line, and no additional personnel would be required. Operation and maintenance of the proposed project gen-tie line would involve periodic inspection via helicopter or truck. The transmission lines would be maintained on an as-needed basis and would include maintenance of access roads and erosion/drainage control structures.

Direct Effects

No additional personnel or equipment would be required for Alternative B; therefore no additional impacts other than those operation and maintenance impacts described for Alternative 4 would occur.

Indirect Effects

No additional personnel or equipment would be required for Alternative B; therefore no additional impacts would other than those operation and maintenance impacts described for Alternative 4 occur.

Decommissioning

At the end of the life of Alternative B, equipment and facilities would be removed and demolished, and the site would be returned to its original condition.

Direct Effects

Equipment used for decommissioning would generally be similar to that used for construction. Because decommissioning would occur after serving at least 30 years, it is likely that equipment engine technology would be more advanced and fuel would be cleaner. Therefore, GHG emissions during decommissioning of the proposed gen-tie would be significantly less than the GHG emissions associated with its construction.

Indirect Effects

There would be no indirect effects associated with Alternative B during decommissioning.

Mitigation Measures

By providing transmission infrastructure for production of renewable energy, Alternative B would result in avoided GHG emissions associated with displaced fossil fuel power generation. GHG emissions associated with gen-tie construction and operations would not cause adverse effects. Accordingly, no climate change/GHG emissions mitigation measures are required.

Residual Impacts and Unavoidable Adverse Effects

Alternative B would have no residual impacts and no unavoidable adverse effects related to climate change.

4.5.12 Alternative C – Separate Transmission Towers within Same ROW

The Alternative C gen-tie line would parallel the approved Desert Sunlight gen-tie line, and would be located on separate towers within the same ROW. The same number of towers in a nearly identical alignment to that of First Solar's tower would be constructed. Construction, operation, and maintenance of Alternative C would be identical to that for Alternative B, except for some additional ground disturbance required for the new tower locations, pulling stations, and dead-end poles.

Construction

Construction activities required under Alternative C would be essentially the same as those required under Alternative B.

Direct Effects

Under Alternative C, construction equipment usage would be identical to Alternative B.

Indirect Effects

There would be no indirect effects associated with Alternative C during construction.

Operation and Maintenance

DHSP operations and maintenance personnel would perform periodic maintenance of the gen-tie line, and no additional personnel would be required. Operation and maintenance of the proposed project gen-tie line would involve periodic inspection via helicopter or truck. The transmission lines would be maintained on an as-needed basis and would include maintenance of access roads and erosion/drainage control structures.

Direct Effects

No additional personnel or equipment would be required for Alternative C; therefore no additional impacts other than those operation and maintenance impacts described for Alternative 4 would occur.

Indirect Effects

No additional personnel or equipment would be required for Alternative C; therefore no additional impacts other than those operation and maintenance impacts described for Alternative 4 would occur.

Decommissioning

Decommissioning under Alternative C would be essentially the same as decommissioning under Alternative B, except for removal of the new towers proposed as a part of Alternative C.

Direct Effects

Required decommissioning activities and equipment under Alternative C would be similar to those described under Alternative B, except for additional equipment for disassembly of the new towers proposed under Alternative C. Therefore climate change/GHG effects during Alternative C decommissioning would also be slightly more than decommissioning effects under Alternative B.

Indirect Effects

There would be no indirect effects associated with Alternative C during decommissioning.

Mitigation Measures

Similar to Alternative B, Alternative C would result in avoided GHG emissions associated with displaced fossil fuel power generation, and GHG emissions associated with gen-tie construction and operations would not cause adverse effects. Accordingly, no climate change/GHG emissions mitigation measures are required.

Residual Impacts and Unavoidable Adverse Effects

Alternative C would have no residual impacts and no unavoidable adverse effects related to climate change.

4.5.13 Alternative D – Cross-Valley Alignment

Construction, operation, and maintenance of gen-tie line under Alternative D would be identical to that of gen-tie line under Alternative C, except it would require slightly less temporary and permanent ground disturbance.

Construction

Construction activities required under Alternative D would be essentially the same as those required under Alternative C.

Direct Effects

Under Alternative D, construction equipment usage would be essentially the same as Alternative C. Therefore effects associated with climate change/GHG under Alternative D would be similar to those effects under Alternative C.

Indirect Effects

There would be no indirect effects associated with Alternative D during construction.

Operation and Maintenance

DHSP operations and maintenance personnel would perform periodic maintenance of the gen-tie line, and no additional personnel would be required. Operation and maintenance of the proposed project gen-tie line would involve periodic inspection via helicopter or truck. The transmission lines would be maintained on an as-needed basis and would include maintenance of access roads and erosion/drainage control structures.

Direct Effects

No additional personnel or equipment would be required for Alternative D; therefore no additional impacts other than those operation and maintenance impacts described for Alternative 4 would occur.

Indirect Effects

No additional personnel or equipment would be required for Alternative D; therefore no additional impacts other than those operation and maintenance impacts described for Alternative 4 would occur.

Decommissioning

Decommissioning under Alternative D would be essentially the same as decommissioning under Alternative C.

Direct Effects

Required decommissioning activities and equipment under Alternative D would be similar to those described under Alternative C; therefore, climate change/GHG effects during Alternative D decommissioning would also be similar to decommissioning effects under Alternative C.

Indirect Effects

There would be no indirect effects associated with Alternative D during decommissioning.

Mitigation Measures

Similar to Alternative B, Alternative D would result in avoided emissions associated with displaced fossil fuel power generation, and emissions associated with gen-tie construction and operations would not cause adverse effects. Accordingly, no climate change/GHG emissions mitigation measures are required.

Residual Impacts and Unavoidable Adverse Effects

Alternative D would have no residual impacts and no unavoidable adverse effects related to climate change.

4.5.14 Alternative E – New Cross-Valley Alignment

Construction, operation, and maintenance of gen-tie line under Alternative E would be similar to that of gen-tie line under Alternative C, except it would require slightly less temporary and permanent ground disturbance.

Construction

Construction activities required under Alternative E would be essentially the same as those required under Alternative C.

Direct Effects

Under Alternative E, construction equipment usage would be essentially the same as Alternative B. Therefore effects associated with climate change/GHG under Alternative E would be similar to those effects under Alternative C.

Indirect Effects

There would be no indirect effects associated with Alternative E during construction.

Operation and Maintenance

DHSP operations and maintenance personnel would perform periodic maintenance of the gen-tie line, and no additional personnel would be required. Operation and maintenance of the proposed project gen-tie line would involve periodic inspection via helicopter or truck. The transmission lines would be maintained on an as-needed basis and would include maintenance of access roads and erosion/drainage control structures.

Direct Effects

No additional personnel or equipment would be required for Alternative E; therefore no additional impacts other than those operation and maintenance impacts described for Alternative 4 would occur.

Indirect Effects

No additional personnel or equipment would be required for Alternative E; therefore no additional impacts other than those operation and maintenance impacts described for Alternative 4 would occur.

Decommissioning

Decommissioning under Alternative E would be essentially the same as decommissioning under Alternative C.

Direct Effects

Required decommissioning activities and equipment under Alternative E would be similar to those described under Alternative C; therefore, GHG/climate change effects during Alternative E decommissioning would also be similar to decommissioning effects under Alternative C.

Indirect Effects

There would be no indirect effects associated with Alternative E during decommissioning.

Mitigation Measures

Alternative E would result in avoided GHG emissions associated with displaced fossil fuel power generation, and GHG emissions associated with gen-tie construction and operations would not cause adverse effects. Accordingly, no climate change/GHG emissions mitigation measures are required.

Residual Impacts and Unavoidable Adverse Effects

Alternative E would have no residual impacts and no unavoidable adverse effects related to climate change.

4.5.15 Cumulative Effects

It is generally agreed within the scientific community that increasing atmospheric concentrations of GHGs can cause changes to current global climate conditions, which could include changes to the local climate at the project site. The specific nature of any localized climate change cannot

be reasonably predicted but could include increases or decreases in temperature and rainfall, the increase in severe weather events, or otherwise cause changes to the local climatology. According to the Cal Adapt (2011) interactive modeling tool, temperatures in the Desert Center area are expected to increase by approximately 3 °F under low emissions scenario and approximately 7 °F under high emissions scenario on average by the end of the century.

Table 4.5-4. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Climate Change	International, global	CO2e	Global Cumulative Impacts

This entire GHG effects assessment is a cumulative effect assessment, as it is currently impossible to link specific GHG emissions or sequestration to any specific environmental effects associated with climate change. Therefore, there is no link between project-level GHG emissions and direct localized effects. Several global and regional effects are generally attributed to increased temperatures associated with increased atmospheric GHG concentrations. The effects that have been observed or projected in California include a decrease in snowpack, sea level rise, more extreme heat days per year, more high ozone days, increased frequency and intensity of wildfires, and more drought years, with impacts on agriculture, water resources, changes in disease vectors, and changes in habitat and biodiversity.

Construction and operation of Alternatives 4 through 7 and C through E would emit GHGs and, therefore, have been analyzed as a source of potential cumulative effects in the context of long term global and regional effects of climate change and existing GHG regulatory requirements and GHG energy policies. However, the broad integration of renewable energy produced by the proposed project and other renewable energy development in the project area would allow displacement of fossil fuel use for electricity generation, which would avoid GHG emissions that otherwise would occur. Thus, the Proposed Action would not be likely to contribute to adverse cumulative GHG effects considering the indirect emission reduction resulted from the Proposed Action.

The No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. In addition, Alternative B would not contribute to cumulative GHG effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

4.5.16 CEQA Considerations

CEQA Significance Criteria

The indicators listed below were used to determine whether the project's GHG emissions would be significant under CEQA. These indicators are based on the significance criteria for air quality listed in the CEQA Environmental Checklist, Appendix G of the CEQA Guidelines. Under CEQA, the proposed project would have a significant impact on climate change if it would:

GHG-1 Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment

GHG-2 Conflict with an applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs

The SCAQMD adopted an interim GHG significance threshold of 10,000 MTCO2e/year for industrial projects, with a project's construction emissions added after being amortized over 30 years or the project life (SCAQMD 2008).

CEQA Significance Determination

Evaluation of CEQA significance for climate change/GHG, which encompasses long-term global and regional impacts, is based on the effects of the entire project from construction through decommissioning. The analysis for GHG is cumulative in nature because individual development projects contribute to the cumulative effects of climate change by emitting GHGs during construction and operational phases.

Alternative 1. Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed at the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, impacts from project-related climate change/GHG would not occur.

Alternative 2. Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

Alternative 3. Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

Alternative 4. Alternative 4 would cause direct GHG emissions well below the threshold of CEQA significance of 10,000 MTCO2e/year for industrial projects (as in Table 4.5-2), not including the avoided emissions from the electrical sector that will be enabled by the project's operation. The project as a whole will enable GHG emission reductions within the electricity generation sector; therefore, the impacts of the project, including the effects of avoided emissions, would be less than significant (CEQA significance criterion GHG-1).

As a solar power project, the project would fulfill a portion of the renewable portfolio that is mandated for California and reflected in the CARB AB 32 Scoping Plan and the Governor's Executive Order S-14-08, partially satisfying the goals of the California Renewable Energy Programs (as described above in Climate Change Policies and Regulations). Therefore, the project

would conform to applicable plans, policies, and regulations related to GHG emission reductions, and this project impact would be less than significant (CEQA significance criterion GHG-2).

Alternative 5. Under Alternative 5 the solar facility would be constructed the same as Alternative 4, however, project components would be excluded from the WHMA. This represents a very small portion of the site. Therefore, climate change/GHG impacts and CEQA significance conclusions for criteria GHG-1 and GHG-2 regarding construction, operation, and decommissioning would essentially be the identical to Alternative 4, discussed above.

Alternative 6. Under Alternative 6 the solar facility would be constructed the same as Alternative 4, however, the project would be reduced in size to avoid sensitive plant species. This represents a small portion of the site. Therefore, climate change/GHG impacts and CEQA significance conclusions for criteria GHG-1 and GHG-2 regarding construction, operation, and decommissioning would essentially be the identical to Alternative 4, discussed above.

Alternative 7. Under Alternative 7 the solar facility would be constructed the same as Alternative 4, however, the project would be reduced in size to within the same project boundaries as Alternative 6 and would use high-profile single-axis tracking panels that would have a total height of 15 feet. This represents a small portion of the site. Therefore, climate change/GHG impacts and CEQA significance conclusions for criteria GHG-1 and GHG-2 regarding construction, operation, and decommissioning would essentially be the identical to Alternative 4, discussed above.

Alternative A. Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, no climate change/GHG impacts under criteria GHG-1 and GHG-2 related to construction, operations and maintenance, or decommissioning would occur.

Alternative B. Alternative B would cause direct GHG emissions well below the threshold of CEQA significance of 10,000 MTCO2e/year for industrial projects, not including the avoided emissions from the electrical sector that will be enabled by the project's operation. The project as a whole will enable GHG emission reductions within the electricity generation sector; therefore, the impacts of the project, including the effects of avoided emissions, would be less than significant (CEQA significance criterion GHG-1).

As the gen-tie line for a solar power project, the project would fulfill a portion of the renewable portfolio that is mandated for California and reflected in the CARB AB 32 Scoping Plan and the Governor's Executive Order S-14-08, partially satisfying the goals of the California Renewable Energy Programs (as described above in Climate Change Policies and Regulations). Therefore, the project would conform to applicable plans, policies, and regulations related to GHG emission reductions, and this project impact would be less than significant (CEQA significance criterion GHG-2).

Alternative C. Construction and operation activity presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative C. Therefore, climate change/GHG impacts and CEQA significance conclusions for criteria GHG-1 and GHG-2 regarding construction, operation, and decommissioning would essentially be the identical to Alternative B, discussed above.

Alternative D. Construction and operation activity presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative D. Therefore, climate change/GHG impacts and CEQA significance conclusions for criteria GHG-1 and GHG-2 regarding construction, operation, and decommissioning would essentially be the identical to Alternative B, discussed above.

Alternative E. Construction and operation activity presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative E. Therefore, climate change/GHG impacts and CEQA significance conclusions for criteria GHG-1 and GHG-2 regarding construction, operation, and decommissioning would essentially be the identical to Alternative B, discussed above.

Cumulative Impacts

Cumulative impacts are described in Section 4.5.15. As discussed therein, the contribution of the proposed project and alternatives to a cumulative GHG impact would be less than considerable under CEQA.

4.6 CULTURAL RESOURCES

4.6.1 Methodology for Analysis

This section analyzes potential impacts from the construction, operation and maintenance, and closure and decommissioning of the DHSP related to cultural resources. The potential for impacts to cultural resources depends on whether such resources are present and whether they would be encountered during project activities. Cultural resources include materials (e.g., artifacts, structures, or land modifications) that reflect the history of human development as well as places that are valued by Native Americans or local national/ethnic groups.

This analysis evaluates the structural and cultural evidence of human development in the vicinity of the project site and requires appropriate mitigation measures to avoid or reduce impacts to significant historic properties (cultural resources listed on or eligible for listing on the National Register of Historic Places [NRHP]) and the California Register of Historic Resources (CRHR) in the event of project-related disturbance. Prehistoric, ethnographic and historic resources are considered in this assessment.

The basic regulatory process for assessing impacts related to cultural resources consists of five steps:

- Determining the appropriate geographic extent of the analysis for the Proposed Action and for each alternative action under consideration;
- Conducting an inventory of historic properties within each such geographic area;
- Determining the historical significance of the historic property identified in the inventory for each geographic area;
- Assessing the effects of the proposed and alternative actions on historic properties; and
- Developing measures to resolve those effects.

Further details of each of these phases follow below and help provide the parameters of the present analysis.

Area of Potential Effects. Section 106 of the National Historic Preservation Act (NHPA), and its implementing regulations at 36 CFR 800, define the Area of Potential Effects (APE) as the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist. The APE is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking (36 CFR 800.16(d)). For purposes of complying with Section 106, the APE for the project consists of the following:

- For archaeological resources (both historic and prehistoric), the APE for direct effects is defined as the area included within the ROW grant for the DHSP (including the solar facility and associated on-site infrastructure, roads, and transmission lines). This includes the maximum depth that would be reached by all foundation excavations and by all pipeline installation trenches, as described in detail in Section 2.4.3.
- The indirect effects APE identifies historic properties whose settings could be adversely affected by industrial development. Visual, auditory, and atmospheric effects from the pro-

posed project are considered in this analysis. The indirect effects APE is defined as encompassing a radius of five miles surrounding the proposed project.

- The APE for ethnographic resources is often identified in consultation with Native Americans and other ethnic groups. These resources may include properties to which Indian Tribes attach religious or cultural significance. Direct effects and indirect effects, including visual, auditory, and atmospheric effects, to these resources are considered in this analysis. For the DHSP, the ethnographic APE includes both the direct and indirect APE.

Archaeological Resources Inventory. The records search for the DHSP included collecting information about all known cultural resources within the direct effects APE plus a one-mile buffer. In addition to archival and online research, sources checked included:

- The Eastern Information Center (EIC) of the California Historical Resources Information System (CHRIS);
- Previously documented cultural resources or archaeological studies in the project area;
- National Register of Historic Places (NRHP);
- California Register of Historical Resources (CRHR);
- California State Historical Landmarks;
- California Points of Historical Interest;
- California Inventory of Historic Resources;
- BLM Field Office files;
- Local historical societies, museums and research institutions; and
- BLM Cultural Areas of Critical Environmental Concern (ACEC) files.

Pedestrian surveys of the direct effects APE also were conducted. Results of the cultural records search and inventory work are provided in Section 3.6, Cultural Resources. Some portions of Alternative D and Alternative E that are on privately owned land have not been subject to the Class III survey. The remaining unsurveyed land in Alternative D totals 98.3 acres, about 43.5 percent of the Alternative corridor and 3.9 percent of the total project APE. The remaining unsurveyed land in Alternative E totals 7.04 acres, about 2.8 percent of the Alternative corridor and less than 1 percent of the total project APE. All other portions of the DHSP APE, including the built environment and the indirect effects study have been completed and incorporated into this Final EIS.

Assessing Effects. The core of a cultural resources analysis under NEPA and Section 106 is the assessment of the character of the effects that a proposed or alternative action may have on historical properties (cultural resources listed on or eligible for listing on the NRHP). The analysis takes into account direct, indirect, and cumulative effects to historic properties.

In accordance with 36 CFR 800.5, which describes criteria for adverse effects, effects on historic properties are considered adverse if one or more of the following conditions would result from implementation of the Proposed Action:

- An undertaking has an effect on a historic property when the undertaking may alter characteristics that qualify the property for inclusion in the NRHP. For the purpose of determining the type of effect, alteration to features of a property's location, setting, or use may be relevant, depending on the property's significant characteristics, and should be considered.

- An undertaking is considered to have an adverse effect when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to:
  - Physical destruction, damage, or alteration of all or part of the property;
  - Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the NRHP;
  - Introduction of visual, audible, or atmospheric elements that are out of character with the property or that alter its setting;
  - Neglect of the property, resulting in its deterioration or destruction; and
  - Transfer, lease, or sale of the property.

Consideration is given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative. A formal finding of effect under Section 106 is made for the proposed undertaking as a whole rather than for individual resources affected by the undertaking.

Under NEPA, direct and indirect effects are those that are more clearly and immediately attributable to the implementation of proposed or alternative actions. Direct effects are those "which are caused by the [proposed or alternative] action and [which] occur at the same time and place" (40 CFR 1508.8(a)). Direct impacts to cultural resources are caused by project development, construction, and co-existence. Indirect effects are those "which are caused by the [proposed or alternative] action and are later in time or farther removed in distance, but are still reasonably foreseeable" (40 CFR 1508.8(b)).

The NHPA Section 106 regulations narrow the range of direct effects and broaden the range of indirect effects relative to the definitions of the same terms under NEPA. Under the NHPA, the term "effect" "means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register" (36 CFR 800.16(i)). In practice, a "direct effect" under Section 106 is limited to the direct physical disturbance of a historic property. Effects that are immediate but not physical in character, such as visual, auditory, or atmospheric intrusions, and reasonably foreseeable effects that may occur at some point subsequent to the implementation of the proposed undertaking are referred to in the Section 106 process as "indirect effects."

Adverse effects on historic properties are typically considered permanent as these resources are finite and disturbance of them, particularly archaeological sites, cannot be reversed. However, indirect effects to historic properties can be temporary if projects do not permanently impact associated resources and are removed at a future date.

Each action alternative would directly impact cultural resources that are potentially eligible for listing on the California Register of Historical Resources (CRHR) and the NRHP. Table 4.6-1 summarizes the resources affected by each action alternative.

Table 4.6-1 Comparison of Known Cultural Resources within Action Alternatives

	Direct			Indirect		
Alt	Resources Identified	Determinations of Eligibility	Adverse Effects	Resources Identified	Determinations of Eligibility	Adverse Effects
4	1 (prehistoric)	1 determined not eligible	None	3 prehistoric 17 historic	6 determined eligible 2 contributors to districts 2 NRHP/CRHR listed 10 determined not eligible	1 historic district
5	1 (prehistoric)	1 determined not eligible	None	3 prehistoric 17 historic	6 determined eligible 2 contributors to districts 2 NRHP/CRHR listed 10 determined not eligible	1 historic district
6	1 (prehistoric)	1 determined not eligible	None	3 prehistoric 17 historic	6 determined eligible 2 contributors to districts 2 NRHP/CRHR listed 10 determined not eligible	1 historic district
7	1 (prehistoric)	1 determined not eligible	None	3 prehistoric 17 prehistoric	6 determined eligible 2 contributors to districts 2 NRHP/CRHR listed 10 determined not eligible	1 historic district
B/C	28 total 4 prehistoric 16 historic 2 multicomponent 6 unknown	1 determined eligible 7 assumed eligible 7 not evaluated 9 determined not eligible 4 recommended not eligible	8 resolve through MOA 7 avoid through MOA	3 prehistoric 17 historic	6 determined eligible 2 contributors to districts 2 NRHP/CRHR listed 10 determined not eligible	1 prehistoric district 1 prehistoric trail 1 historic district
D	6 (all historic)	1 determined eligible 3 not evaluated 2 determined not eligible	1 resolve through MOA 3 avoid through MOA	3 prehistoric 17 historic	6 determined eligible 2 contributors to districts 2 NRHP/CRHR listed 10 determined not eligible	1 prehistoric district 1 prehistoric trail 1 historic site 1 historic district
E	8 (all historic)	1 not evaluated 6 determined not eligible 1 recommended not eligible	2 avoid through MOA	3 prehistoric 17 historic	6 determined eligible 2 contributors to districts 2 NRHP/CRHR listed 10 determined not eligible	1 prehistoric district 1 prehistoric trail 1 historic district

4.6.2 Applicant Measures

The Applicant has proposed a single measure to minimize impacts to cultural resources: that a cultural resources monitoring and mitigation plan will be included as a DHSP design feature. The plan will include a description of areas to be monitored during construction, a discovery plan that will address post-review discoveries and unanticipated effects, and provisions for the education of construction workers. The Applicant Measure (AM) has been incorporated as a design feature of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project.

In some cases, mitigation measures further clarify or expand on AM reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between

provisions of the mitigation measures imposed and the following AM, the mitigation measures take precedence.

AM CULT-1 Monitoring and Mitigation Plan. A cultural resources monitoring and mitigation plan will be prepared for the project. The plan will include a description of areas to be monitored during construction, a discovery plan that will address unanticipated cultural resources, and provisions for the education of construction workers. Responsible parties for mitigation measures will be identified.

4.6.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the proposed project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, impacts would not occur.

4.6.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.6.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.6.6 Alternative 4 – Proposed Solar Project

Under Alternative 4, the proposed DHSP would be approved by BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy developments. A 150 megawatt solar generating facility would then be built on two parcels, the northern parcel consisting of 1,052 acres and the southern parcel consisting of 155 acres. Alternative 4 would have a direct effect on one prehistoric archaeological site (AE-2326-1, NRHP-ineligible) and an indirect adverse effect on the DTC/C-AMA. In addition, the geologic unit underlying these two parcels consists primarily of recent age alluvial deposits resulting in a low to moderate potential that these landforms contain unidentified archaeological sites that could be adversely affected.

Construction

Direct Effects

Construction of Alternative 4 would require clearing and grading that would directly affect archaeological sites, built environment resources, and proposed historic landscapes by damaging and displacing artifacts and features, resulting in loss of information about history and prehistory, construction of modern elements out of character with a possible historic setting, and degrading the preservation value of these resources. The geologic units present at the site have a low to moderate potential to contain buried archaeological sites. The physical disturbance of the geologic units present at the site during construction of the solar facility could directly affect any archaeological sites that might be present. Physical disturbance of NRHP-eligible sites would constitute a significant impact under NEPA. Therefore, the potential for adverse direct effects on cultural resources is moderate.

Mitigation Measure (MM) CUL-1 (Memorandum of Agreement) clarifies that a Memorandum of Agreement (MOA) shall be developed and that it shall govern the resolution of any adverse effects on historic properties; MM CUL-2 (Project Cultural Resources Staff) would require a qualified cultural resources specialist to be retained by the project owner to develop and implement the Monitoring and Treatment Plan; MM CUL-3 (Monitoring and Treatment Plan) would require the development and implementation of a plan to guide all project cultural resources work; MM CUL-4 (Authority to Halt) would ensure that cultural resources specialists and monitors have the authority to halt construction in the event of an inadvertent discovery; MM CUL-5 (Cultural Resources Worker Environmental Awareness Program) would require training for all construction personnel; MM CUL-6 (Monitoring for Cultural Resources) would require expert monitoring of all ground disturbance; MM CUL-7 (Cultural Resources Reporting) would require documentation of interim and final results of the construction monitoring program; MM CUL-8 (Curation of Cultural Resources Collections) would require curation of any cultural resources finds; and MM CUL-9 (Pre-construction Geoarchaeological Subsurface Excavation) requires a geoarchaeological study prior to construction.

Together these mitigation measures, along with measures to be developed in the MOA, would minimize the potential for adverse effects from solar facility construction to as-yet-unidentified archaeological sites. Therefore, based on the information available, the potential for adverse direct effects on cultural resources is moderate.

Indirect Effects

The construction of this alternative would result in indirect adverse effects associated with a visual intrusion into the historic setting of the proposed DTC/C-AMA historic district (NRHP-eligible).Mitigation Measures MM CUL-1 through CUL-9, described above and measures to be developed in the MOA, would reduce the impacts from solar facility construction to cultural resources.

Operation and Maintenance

Direct Effects

While no ground disturbance is planned for the operation of the facility, maintenance may require some particularly in the case of pipeline repair. The operation and maintenance of Alter-

native 4 would have a low potential to directly affect (i.e., damage or destroy) any buried archaeological sites that might be present because it is unlikely that previously undisturbed soils would be disturbed during operations. Therefore, the potential for adverse direct effects on cultural resources is low.

Mitigation Measures CUL-1 through CUL-9, and measures to be developed in the MOA, would minimize the potential for direct impacts from solar facility operation and maintenance to as-yet-unidentified archaeological sites.

Together these mitigation measures would minimize the potential for direct impacts from solar facility operation and maintenance to as-yet-unidentified archaeological sites. Therefore, based on the information available, the potential for adverse direct effects on cultural resources is low.

Indirect Effects

Operation and maintenance of Alternative 4 would result in indirect adverse effects associated with a visual intrusion into the historic setting of the proposed DTC/C-AMA historic district (NRHP-eligible). Mitigation Measures CUL-1 through CUL-9, and measures to be developed in the MOA, would reduce the adverse effects from solar facility operation and maintenance to cultural resources.

Decommissioning

Direct Effects

While no new areas of ground disturbance are proposed for decommissioning, decommissioning activities may not be limited to disturbing only previously disturbed soils at depth, and excavation for electrical wiring and steel support beams may occur to a deeper depth than excavation during construction. The decommissioning of Alternative 4 has a moderate potential to directly affect (i.e., damage or destroy) any buried archaeological sites that might be present. Therefore, the potential for adverse direct effects on cultural resources is moderate.

Mitigation Measures CUL-1 through CUL-9, and measures to be developed in the MOA, would minimize the potential for direct impacts from solar facility decommissioning to as-yet-unidentified archaeological sites.

Together these mitigation measures would minimize the potential for direct effects from solar facility decommissioning to as-yet-unidentified archaeological sites.

Indirect Effects

Decommissioning of Alternative 4 would result in indirect adverse effects associated with a visual intrusion into the historic setting of the proposed DTC/C-AMA historic district (NRHP-eligible). Mitigation Measures CUL-1 through CUL-9, and measures developed in the MOA, would reduce the adverse effects from solar facility decommissioning to cultural resources.

Mitigation Measures

The following mitigation measures are required to reduce effects related to cultural resources.

MM CUL-1 Memorandum of Agreement.

The BLM shall prepare a Memorandum of Agreement (MOA) in consultation with the SHPO, Indian tribes, and other interested parties. The MOA will govern the resolution of any adverse effects on historic properties (listed on or eligible for the NRHP) that may result from the proposed or alternative actions. It shall also govern MM CUL-2 through CUL-9, below. The MOA shall be executed prior to BLM's approval of the Record of Decision.

MM CUL-2 Project Cultural Resources Staff.

Project Cultural Resources Specialist. Prior to the issuance of a Notice to Proceed by BLM, a cultural resources specialist whose training and background conforms to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61) shall be retained by the project owner and approved by the BLM to supervise monitoring of construction excavations and to produce a Monitoring and Treatment Plan for the approved project. Their qualifications shall be appropriate to the needs of the project and shall include a background in anthropology, archaeology, history, architectural history, or a related field. The Monitoring and Treatment Plan will be prepared and implemented under the direction of the cultural resources specialist and will address and incorporate MM CUL-1 through MM CUL-9.

Additional Cultural Resources Staff

The Project Cultural Resources Specialist may obtain the services of Cultural Resources Monitors and Field Crew if needed, to assist in mitigation, monitoring, and curation activities. These individuals must meet BLM qualifications and their resumes must be reviewed and approved by BLM prior to beginning work.

MM CUL-3 Monitoring and Treatment Plan. Prior to the issuance of a Notice to Proceed by BLM, the Project Cultural Resources Specialist shall submit a Monitoring and Treatment Plan for the project to the BLM for review and approval. The Monitoring and Treatment Plan shall be prepared and implemented under the direction of the Project Cultural Resources Specialist and shall address and incorporate MM CUL-1 through MM CUL-9. The Monitoring and Treatment Plan shall be prepared at the sole expense of the of the project proponent, and shall meet all BLM and Riverside County regulatory requirements. A monitoring plan indicates the avoidance or treatments recommended for the area of the proposed disturbance and must minimally address the following:

1. The duties of the Project Cultural Resources Specialist shall be fully discussed, including oversight/management duties with respect to site evaluation, data collection, monitoring, and reporting at both known prehistoric and historic-period archaeological sites and any NRHP and CRHR-eligible prehistoric and historic-period archaeological sites discovered during construction;
2. A general research design shall be developed that:
   a. Charts a timeline of all research activities;

b. Recapitulates any existing paleoenvironmental, prehistoric, ethnohistoric, ethnographic, and historic contexts to create a comprehensive historic context for the project vicinity;

c. Poses archaeological research questions and testable hypotheses specifically applicable to the archaeological resource types known for the project vicinity; and

d. Clearly articulates why it is in the public interest to address the research questions that it poses.

3. Artifact collection, retention/disposal, and curation policies shall be discussed, as related to the research questions formulated in the research design. These policies shall apply to cultural resources materials and documentation resulting from evaluation and data recovery at both known prehistoric and historic-period archaeological sites and any NRHP or CRHR-eligible prehistoric and historic-period archaeological sites discovered during construction.

4. The implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the ground-disturbance and post-ground–disturbance analysis phases of the project shall be specified.

5. Person(s) expected to perform each of the tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team shall be identified.

6. The manner in which Native American observers or monitors will be included, the procedures to be used to select them, and their roles and responsibilities shall be described.

7. All impact-avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation shall be described. Any areas where these measures are to be implemented shall be identified. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related impacts.

8. The commitment to record on Department of Parks and Recreation (DPR) 523 forms, to map, and to photograph all encountered cultural resources over 50 years of age shall be stated. In addition, the commitment to curate all archaeological materials retained as a result of the archaeological investigations (survey, testing, data recovery), in accordance with the BLM requirements and the California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections, into a retrievable storage collection in a public repository or museum shall be stated.

9. The commitment of the project owner to pay all curation fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project shall be stated. The project owner shall identify a curation facility that could accept cultural resources materials resulting from DHSP cultural resources investigations.

10. The contents, format, and review and approval process of the final Cultural Resource Report (CRR) shall be described and shall meet BLM and Riverside County guidelines.

MM CUL-4 **Authority to Halt Construction.** The project owner shall grant authority to halt construction-related ground disturbance to the Project Cultural Resources Specialist and cultural resources monitors in the event of a discovery. Redirection of construction-related ground disturbance shall be accomplished under the direction of the construction supervisor in consultation with the cultural resources specialist. The details of this agreement shall be stipulated in the Monitoring and Treatment Plan Mitigation Measure CUL-3.

MM CUL-5 **Cultural Resources Worker Environmental Awareness Program (WEAP).** Prior to issuing a BLM Notice to Proceed, the project proponent shall submit evidence of that WEAP training has been provided to construction supervisors and crew to ensure their awareness of requirements regarding the protection of historic properties and procedures to be implemented in the event that archaeological sites are encountered by ground-disturbing activities. This training will be prepared by the Project Cultural Resources Specialist (MM CUL-2), reviewed and approved by the BLM, and presented by a qualified cultural resources specialist. All construction supervisors and crewmembers shall be required to undergo archaeological WEAP training prior to commencement of ground-disturbing activities or prior to beginning work on the project site. WEAP training shall also be required for decommissioning personnel.

MM CUL-6 **Monitoring for Cultural Resources.** Ground-disturbing activities related to construction, operation, maintenance, and decommissioning shall be monitored by a cultural resources monitor. The personnel involved in monitoring, the qualifications of those personnel, and the monitoring intensity shall be shall be stipulated in the Monitoring and Treatment Plan Mitigation Measure CUL-3. However, at a minimum monitoring shall be conducted by a qualified archaeologist familiar with the types of historical and prehistoric resources that could be encountered within the approved project area, and under direct supervision of a principal archaeologist. All cultural resources personnel will be approved by the BLM through the agency's Cultural Resource Use Permitting process. A Native American monitor may be required at culturally sensitive locations specified by the BLM following government-to-government consultation with Indian Tribes. The Monitoring and Treatment Plan (MM CUL-3) shall indicate the types of locations where Native American monitors will be required and shall specify the tribal affiliation of the required Native American monitor for each location. The project owner shall retain and schedule any required Native American monitors. If cultural resources are encountered during construction or decommissioning, treatment shall occur per Mitigation Measure CUL-3 (Monitoring and Treatment Plan. At a minimum, this treatment will include stop work orders in the vicinity of the find, recordation and evaluation of the find by a qualified cultural resources specialist, notification of the find to BLM and the appropriate state regulatory agency, and appropriate treatment measures, possibly including data recovery or avoidance.

MM CUL-7 **Cultural Resources Reporting.** The project Cultural Resources Specialist shall document interim results of the construction monitoring program with daily, weekly, or monthly progress reports as necessary to the project owner, state regulatory agency and the BLM. The contents of these reports shall be stipulated in the Monitoring and Treatment Plan per Mitigation Measure CUL-3.

The final cultural resources report shall be written by or under the direction of the project cultural resources specialist and shall be provided in the State of California Archaeological Resource Management Report and appropriate BLM report format. The final document shall report on all field activities including dates, times and locations, results, samplings, and analyses. All survey reports, Department of Parks and Recreation (DPR) 523 forms, data recovery reports, and any additional research reports not previously submitted to the California Historical Resource Information System (CHRIS) and the State Historic Preservation Officer (SHPO) shall be included as appendices. Additional reporting requirements may be specified in the Monitoring and Treatment Plan per Mitigation Measure CUL-3.

MM CUL-8 **Curation of Cultural Resources Collections.** All archaeological materials retained as a result of the archaeological investigations (survey, testing, data recovery) shall be curated in accordance with BLM requirements and the California State Historical Resources Commission's *Guidelines for the Curation of Archaeological Collections,* into a retrievable storage collection in a public repository or museum. Additional curation requirements may be specified in the Monitoring and Treatment Plan per Mitigation Measure CUL-3.

MM CUL-9 **Pre-construction Geoarchaeological Subsurface Excavation.** Prior to issuing a BLM Notice to Proceed, the Project Cultural Resources Specialist with the assistance of a qualified geoarchaeologist, shall submit a Pre-construction Geoarchaeological Subsurface Excavation Plan for the project to the BLM for review and approval. The Plan shall be prepared and implemented by a qualified geoarchaeologist under the direction of the Project Cultural Resources Specialist. Implementation of the Plan shall be complete prior to the completion of the Monitoring and Treatment Plan (CUL-3) so that the resulting information can guide the project mitigation and monitoring strategy. The Plan shall be prepared and implemented at the sole expense of the project proponent, and meet all BLM and Riverside County regulatory requirements. The geoarchaeological plan is intended guide the investigation of landforms in the project area to develop an understanding of their age and origin, relative to the physical contexts of surface and subsurface archaeological deposits on the proposed project area. Subsurface excavation shall take place in a minimum of 10 locations within the project area, one each in each proposed solar fields, and the remainder placed along the chosen gen-tie line alternative at the discretion of a qualified geoarchaeologist. Trench walls shall be examined and documented by a qualified geoarchaeologist. Small samples from each trench shall be screened through mesh fine enough to collect microvertebrate fossils. A minimum of 10 charcoal or soil humate samples, as appropriate, shall be collected and shall be subjected to AMS radiocarbon dating. Upon completion of all field work and laboratory analysis, a letter report describing the

results of the geoarchaeological study must be submitted to the BLM and the County of Riverside Planning Department for review and approval. The results shall be incorporated into the Monitoring and Treatment Plan.

Residual Impacts and Unavoidable Adverse Effects

Impacts on cultural resources would exist after Applicant Measures and mitigation measures are implemented. Cultural resources damaged or destroyed by Project construction, even if subjected to mitigation, would be permanently lost. The cultural resources would therefore be unavailable for future study to address future research needs when more advanced investigative techniques and methods of analysis might be available. Unavoidable adverse effects on cultural resources would result from construction, operation, and decommissioning of all of the proposed project components under Alternative 4. At this time, it is unknown if impacts on cultural resources can be satisfactorily mitigated, primarily because the MOA and Native American consultations are still in progress. Consultation may raise issues that cannot be resolved through mitigation measures. Prescribed treatments may resolve adverse effects under Section 106. However, given the scale and impact to several of the resources identified, impacts under NEPA may remain despite implementation of the MOA, Applicant Measures, and other mitigation measures. Therefore, the identified impacts of construction, operation, and decommissioning of Alternative 4 are considered unavoidable adverse effects.

4.6.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would remain in the same location as Alternative 4 and would use the same project boundaries as Alternative 4 except that it would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA). Alternative 5 would affect the same cultural resources as Alternative 4, and the disturbed area would be only marginally smaller. In addition, there is a moderate probability that as-yet-unidentified archaeological sites could be affected.

Construction

Direct and Indirect Effects

The effects resulting from constructing Alternative 5 would be the same as those discussed under Alternative 4.

Operation and Maintenance

Direct and Indirect Effects

The effects resulting from the operation and maintenance Alternative 5 would be the same as those discussed under Alternative 4.

Decommissioning

Direct and Indirect Effects

The effects resulting from decommissioning Alternative 5 would be the same as those discussed under Alternative 4.

Mitigation Measures

The mitigation measures MM CUL-1 through MM CUL-9, and measures developed in the MOA, are required to reduce adverse project effects related to cultural resources.

Residual Impacts and Unavoidable Adverse Effects

The unavoidable adverse effects of Alternative 5 would be the same as those discussed under Alternative 4.

4.6.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would remain in the same location as Alternative 4 and would use the same project boundaries as Alternative 4 except that it would exclude the southern parcel. This alternative would encompass approximately 1,044 acres. Alternative 6 would affect the same cultural resources as Alternative 4. In addition, there is a moderate probability that as-yet-unidentified archaeological sites could be impacted. However, a reduced footprint would likely reduce the total number of cultural resources impacted.

Construction

Direct and Indirect Effects

The effects resulting from constructing Alternative 6 would be the same as those discussed under Alternative 4.

Operation and Maintenance

Direct and Indirect Effects

The effects resulting from the operation and maintenance Alternative 6 would be the same as those discussed under Alternative 4.

Decommissioning

Direct and Indirect Effects

The effects resulting from decommissioning Alternative 6 would be the same as those discussed under Alternative 4.

Mitigation Measures

The mitigation measures MM CUL-1 through MM CUL-9, and measures developed as part of the MOA as described above, are required to reduce adverse project effects related to cultural resources.

Residual Impacts and Unavoidable Adverse Effects

The unavoidable adverse effects of Alternative 6 would be the same as those discussed under Alternative 4.

4.6.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 125 to 135 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet. Alternative 7 would affect the same cultural resources as Alternative 4. In addition, there is a moderate probability that as-yet-unidentified archaeological sites could be impacted. However, a reduced footprint would likely reduce the total number of cultural resources impacted.

Construction

Direct and Indirect Effects

The effects resulting from constructing Alternative 7 would be the same as those discussed under Alternative 4.

Operation and Maintenance

Direct and Indirect Effects

The effects resulting from the operation and maintenance Alternative 7 would be the same as those discussed under Alternative 4.

Decommissioning

Direct and Indirect Effects

The effects resulting from decommissioning Alternative 7 would be the same as those discussed under Alternative 4.

Mitigation Measures

The mitigation measures MM CUL-1 through MM CUL-9, and measures developed as part of the MOA as described above, are required to reduce adverse project effects related to cultural resources.

Residual Impacts and Unavoidable Adverse Effects

The unavoidable adverse effects of Alternative 7 would be the same as those discussed under Alternative 4.

4.6.10 Alternative A – No Gen-Tie

Under Alternative A, the proposed Desert Harvest Solar Project gen-tie would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site either available or unavailable for future solar energy development. As a result, the Desert Harvest Solar Project gen-tie would not be constructed. The lack of a gen-tie would prevent the rest of the project from being constructed as well. The BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the Desert Harvest Solar Project would occur.

4.6.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Gen-Tie Line Alternative B would exit the southwest portion of the solar facility site, run south along the west side of Kaiser Road, turn east just north of Desert Center, and then run south across I-10 to the Red Bluff Substation. The transmission corridor would cover a total length of approximately 12.06 miles with a 160-foot wide corridor with plus 450-foot radius fan-shaped stringing areas at each turn. Under this alternative, towers would be shared with the Desert Sunlight Solar Project along the A-1 alignment, should that gen-tie line ultimately be constructed; however, the analysis for direct and indirect effects on cultural resources assumes that complete construction of Alternative B would occur independent of whether the Desert Sunlight gen-tie ultimately is constructed. For combined effects of the two gen-ties, see the cumulative effects analysis in Section 4.6.15.

Alternative B may directly impact 4 prehistoric archaeological sites, 14 historic archaeological sites, 2 multicomponent archaeological sites, and 6 sites of unknown temporal affiliation. It may also indirectly impact 2 historic districts, 1 proposed historic district, segments of a prehistoric trail, 2 WWII era refuse scatters, and 6 built-environment resources. In addition, the geologic unit underlying this alternative consist primarily of recent age alluvial deposits. There is a possibility that as yet unidentified archaeological sites within these deposits could be adversely affected.

Construction

Direct Effects

Construction of Alternative B would require clearing and grading that would directly impact archaeological sites, built environment resources, and the proposed historic landscapes by damaging and displacing artifacts and features, resulting in loss of information about history and prehistory, construction of modern elements out of character with a historic setting, and degrading the preservation value of these resources. Specifically this construction may adversely affect 1 archaeological site which has been determined eligible, 7 sites that are assumed eligible, and 7 sites which have not been evaluated. In addition, the geologic units present along Alternative B have a moderate potential to contain buried archaeological sites. The physical disturbance of the geologic units present along the gen-tie line during construction could directly impact (i.e., damage or destroy) any subsurface archaeological sites that might be present. Therefore, the potential for adverse direct effects on cultural resources is moderate.

Mitigation Measure (MM) CUL-1 (Memorandum of Agreement) clarifies that a MOA shall be developed and that it shall govern the resolution of any adverse effects on historic properties; MM CUL-2 (Project Cultural Resources Staff) would require a qualified cultural resources specialist to be retained by the project owner to develop and implement the Monitoring and Treatment Plan; MM CUL-3 (Monitoring and Treatment Plan) would require the development and implementation of a plan to guide all project cultural resources work; MM CUL-4 (Authority to Halt) would ensure that cultural resources specialists and monitors have the authority to halt construction in the event of an inadvertent discovery; MM CUL-5 (Cultural Resources Worker Environmental Awareness Program) would require training for all construction personnel; MM CUL-6 (Monitoring for Cultural Resources) would require expert monitoring of all ground disturbance; MM CUL-7 (Cultural Resources Reporting) would require documentation of interim and final results of the construction monitoring program; MM CUL-8 (Curation of Cultural

Resources Collections) would require curation of any cultural resources finds; and MM CUL-9 (Pre-construction Geoarchaeological Subsurface Excavation) requires a geoarchaeological study prior to construction.

Together these mitigation measures, along with measures to be developed in the MOA, would minimize the potential for adverse effects from solar facility construction to as-yet-unidentified archaeological sites. Therefore, based on the information available, the potential for adverse direct effects on cultural resources is moderate.

Indirect Effects

Indirect visual, auditory, and atmospheric effects as a result of Alternative B may occur to the North Chuckwalla Petroglyph District (CA-Riv-1383, NRHP listed), segments of a prehistoric trail (CA-Riv-053T, NRHP eligible), and the proposed DTC/C-AMA historic district (NRHP eligible).

Mitigation Measures (MM) CUL-1 through (MM) CUL-9, and measures developed as part of the MOA, would reduce the impacts from solar facility construction to cultural resources.

Operation and Maintenance

Direct Effects

While no ground disturbance is planned for the operation of the facility, maintenance may require some particularly in the case of pipeline repair. The operation and maintenance activities of Alternative B has a moderate potential to directly affect (i.e., damage or destroy) any buried archaeological sites that might be present.

Mitigation Measures CUL-1 through CUL-9, and measures developed as part of the MOA as described above, would minimize the potential for direct impacts from solar facility operation and maintenance to as-yet-unidentified archaeological sites.

Together these mitigation measures would minimize the potential for direct impacts from gen-tie facility operation and maintenance to as-yet-unidentified archaeological sites. Therefore, based on the information available, the potential for adverse direct effects on cultural resources is moderate.

Indirect Effects

Operation and maintenance of Alternative B may result in indirect visual, auditory, and atmospheric effects to the North Chuckwalla Petroglyph District (CA-Riv-1383, NRHP listed), segments of a prehistoric trail (CA-Riv-053T, NRHP eligible), and the proposed DTC/C-AMA historic district (NRHP eligible).

Mitigation Measures CUL-1 through CUL-9, and measures developed as part of the MOA as described above, would reduce the impacts from solar facility operation and maintenance to cultural resources.

Decommissioning

Direct Effects

While no new areas of ground disturbance are proposed for decommissioning, decommissioning activities may not be limited to disturbing only previously disturbed soils at depth, and excavation for electrical wiring and steel support beams may occur to a deeper depth than excavation during construction. The decommissioning of Alternative B has a moderate potential to directly affect (i.e., damage or destroy) any buried archaeological sites that might be present. Therefore, the potential for adverse direct effects on cultural resources is moderate.

Mitigation Measures CUL-1 through CUL-9, and measures developed as part of the MOA as described above, would minimize the potential for direct impacts from solar facility operation and maintenance to as-yet-unidentified archaeological sites.

Together these mitigation measures would minimize the potential for direct impacts from solar facility operation and maintenance to as-yet-unidentified archaeological sites. Therefore, based on the information available, the potential for adverse direct effects on cultural resources is moderate.

Indirect Effects

Decommissioning of Alternative B may result in indirect visual, auditory, or atmospheric effects to the North Chuckwalla Petroglyph District (CA-Riv-1383, NRHP listed), segments of a prehistoric trail (CA-Riv-053T, NRHP eligible), and the proposed DTC/C-AMA historic district (NRHP eligible)

Mitigation Measures CUL-1 through CUL-9, and measures developed as part of the MOA as described above, would reduce the impacts from solar facility operation and maintenance to cultural resources.

Mitigation Measures

Mitigation Measures CUL-1 through CUL-9, and measures developed as part of the MOA as described above, are required to reduce adverse project effects related to cultural resources.

Residual Impacts and Unavoidable Adverse Effects

At this time, it is unknown if impacts on cultural resources as a result of Alternative B can be satisfactorily mitigated, primarily because identification efforts have not been completed for this project. Tribal consultation on this project is also ongoing, and may identify additional resources or raise issues that cannot be resolved through mitigation measures.

4.6.12 Alternative C – Separate Transmission Towers within Same ROW

Gen-tie line Alternative C follows the same route as Alternative B; however, instead of sharing towers in this alternative each project has separate transmission towers within the same ROW. DHSP towers will be located to the west of DSSP towers. This alternative may impact the same cultural resources as Alternative B.

Construction

Direct and Indirect Effects

The effects resulting from constructing Alternative C would be the same as those discussed under Alternative B.

Operation and Maintenance

Direct and Indirect Effects

The effects resulting from the operation and maintenance Alternative C would be the same as those discussed under Alternative B.

Decommissioning

Direct and Indirect Effects

The effects resulting from decommissioning Alternative C would be the same as those discussed under Alternative B.

Mitigation Measures

Mitigation Measures CUL-1 through CUL-9, and measures developed as part of the MOA as described above, are required to reduce adverse project effects related to cultural resources.

Residual Impacts and Unavoidable Adverse Effects

The unavoidable adverse effects of Alternative C would be the same as those discussed under Alternative B.

4.6.13 Alternative D – Cross-Valley Alignment

Gen-tie Alternative D (also formerly evaluated in the Desert Sunlight Solar Farm Project EIS as DSSP Alternative A-2) would exit the southwest corner of the solar facility site, run for a short distance along the east side of Kaiser Road until it intersects with the ROW of an existing SCE transmission line, run to the southeast along the existing transmission ROW, then turn south across I-10 to the Red Bluff Substation. The transmission corridor would cover a total length of approximately 10.45 miles with a 160- foot wide corridor with 450-foot radial fan-shaped areas at each turn. This alternative may directly impact six historic archaeological sites and indirectly impact one prehistoric trail, one archaeological district, one historic archaeological site, and one proposed historic district. The sites are primarily historic archaeological sites, three of which are associated with the DTC/C-AMA. Currently, BLM has determined that one of these resources is eligible for the NRHP (P-33-18392) while two were determined not eligible. The remaining three resources have not been evaluated. In addition, the geologic unit underlying these two parcels consists primarily of recent age alluvial deposits. As such, there is a possibility that as-yet-unidentified archaeological sites within these deposits could be adversely affected.

Construction

Direct Effects

Construction of Alternative D would require clearing and grading that may directly affect archaeological sites and built environment resources, and may impact the proposed historic landscapes by damaging and displacing artifacts and features, resulting in loss of information about history and prehistory, construction of modern elements out of character with a historic setting, and degrading the preservation value of these resources. Specifically this construction may adversely affect one archaeological site that has been determined eligible and three sites that have not been evaluated. In addition, the geologic units present along Alternative D have a moderate potential to contain buried archaeological sites. The physical disturbance of the geologic units present along the gen-tie line during construction could directly affect (i.e., damage or destroy) any subsurface archaeological sites that might be present.

Mitigation Measures CUL-1 through CUL-9, and measures developed as part of the MOA as described above, would minimize the potential for direct effects from gen-tie construction to as-yet-unidentified archaeological sites.

Indirect Effects

Indirect visual, auditory, and atmospheric effects as a result of Alternative D may occur to the North Chuckwalla Petroglyph District (CA-Riv-1383, NRHP listed), segments of a prehistoric trail (CA-Riv-053T, NRHP eligible), one WWII-era refuse scatter (P-33-18352, NRHP eligible), and the proposed DTC/C-AMA historic district (NRHP eligible)

Mitigation Measures CUL-1 through CUL-9, and measures developed as part of the MOA as described above, would reduce the impacts from solar facility construction to cultural resources.

Operation and Maintenance

Direct Effects

While no ground disturbance is planned for the operation of the facility, maintenance may require some particularly in the case of pipeline repair. The operation and maintenance of Alternative D has a moderate potential to directly affect (i.e., damage or destroy) any buried archaeological sites that might be present. Therefore, the potential for adverse direct effects on cultural resources is moderate.

Mitigation Measures CUL-1 through CUL-9, and measures developed as part of the MOA as described above, would minimize the potential for direct effects from solar facility operation and maintenance to as-yet-unidentified archaeological sites.

Together these mitigation measures would minimize the potential for direct effects from gen-tie facility operation and maintenance to as-yet-unidentified archaeological sites.

Indirect Effects

Operation and maintenance of Alternative D may result in indirect visual, auditory, and atmospheric effects to the North Chuckwalla Petroglyph District (CA-Riv-1383, NRHP listed), seg-

ments of a prehistoric trail (CA-Riv-053T, NRHP eligible), one WWII-era refuse scatter (P-33-18352, NRHP eligible), and the proposed DTC/C-AMA historic district (NRHP eligible)

Mitigation Measures CUL-1 through CUL-9, and measures developed as part of the MOA as described above, would reduce the effects from solar facility operation and maintenance to cultural resources.

Decommissioning

Direct Effects

While no new areas of ground disturbance are proposed for decommissioning, decommissioning activities may not be limited to disturbing only previously disturbed soils at depth, and excavation for electrical wiring and steel support beams may occur to a deeper depth than excavation during construction. The decommissioning of Alternative D has a moderate potential to directly affect (i.e., damage or destroy) any buried archaeological sites that might be present. Therefore, the potential for adverse direct effects on cultural resources is moderate.

Mitigation Measures CUL-1 through CUL-9, and measures developed as part of the MOA as described above, would minimize the potential for direct effects from solar facility operation and maintenance to as-yet-unidentified archaeological sites.

Indirect Effects

Decommissioning of Alternative D may result in indirect visual, auditory, and atmospheric effects to the North Chuckwalla Petroglyph District (CA-Riv-1383, NRHP listed), segments of a prehistoric trail (CA-Riv-053T, NRHP eligible), one WWII-era refuse scatter (P-33-18352, NRHP eligible), and the proposed DTC/C-AMA historic district (NRHP eligible).

Mitigation Measures CUL-1 through CUL-9, and measures developed as part of the MOA as described above, would reduce the effects from solar facility operation and maintenance to cultural resources.

Mitigation Measures

The mitigation measures CUL-1 through CUL-9, and measures developed as part of the MOA as described above, are required to reduce adverse project effects related to cultural resources.

Residual Impacts and Unavoidable Adverse Effects

The unavoidable adverse effects of Alternative D would be the same as those discussed under Alternative B.

4.6.14 Alternative E – New Cross-Valley Alignment

Gen-tie Alternative E would exit the southeast corner of the solar farm site, run east across BLM and MWD land, cross Highway 177, intersect with the ROW of an existing SCE transmission line, then turn south across I-10 to the Red Bluff Substation. The transmission corridor covers a total length of approximately 11.47 miles with a 160- foot wide corridor with a 450-foot radial fan-shaped stringing area at each turn. This alternative may directly impact eight historical archaeological sites and may indirectly impact one archaeological district, one prehistoric trail,

and one proposed historic district. BLM has evaluated six of these sites for NRHP eligibility, and determined them not eligible; the remaining site has not been evaluated. In addition, the geologic unit underlying these two parcels consists primarily of recent age alluvial deposits. As such, there is a possibility that as-yet-unidentified archaeological sites within these deposits could be adversely affected.

Construction

Direct Effects

Construction of Alternative E would require clearing and grading that would directly affect archaeological sites, built environment resources, and proposed historic landscapes by damaging and displacing artifacts and features, resulting in loss of information about history and prehistory, construction of modern elements out of character with a possible historic setting, and degrading the preservation value of these resources. Specifically this construction might affect one archaeological site which has not been evaluated for the NRHP, and is therefore potentially eligible. In addition, the geologic units present along Alternative E have a moderate potential to contain archaeological deposits. The physical disturbance of the geologic units present along the gen-tie line during construction could directly impact (i.e., damage or destroy) any cultural resources that might be present.

Mitigation Measures CUL-1 through CUL-9, and measures developed as part of the MOA as described above, would minimize the potential for direct impacts from gen-tie construction to as-yet-unidentified cultural resources.

Indirect Effects

Indirect visual, auditory, and atmospheric effects may occur to the North Chuckwalla Petroglyph District (CA-Riv-1383, NRHP listed), segments of a prehistoric trail (CA-Riv-053T, NRHP eligible), and the proposed DTC/C-AMA historic district (NRHP eligible).

Mitigation Measures CUL-1 through CUL-9, as described above, would reduce the impacts from solar facility construction to these sensitive resources.

Operation and Maintenance

Direct Effects

While no ground disturbance is planned for the operation of the facility, maintenance may require some particularly in the case of pipeline repair. The operation and maintenance of Alternative E would have a low potential to directly affect (i.e., damage or destroy) any buried archaeological sites that might be present because it is unlikely that previously undisturbed soils would be disturbed during operations. Therefore, the potential for adverse direct effects on cultural resources is low.

Mitigation Measures CUL-1 through CUL-9 and measures developed as part of the MOA, would minimize the potential for direct impacts from solar facility operation and maintenance to as-yet-unidentified archaeological sites.

Together these mitigation measures would minimize the potential for direct impacts from solar facility operation and maintenance to as-yet-unidentified archaeological sites. Therefore, based on the information available, the potential for adverse direct effects on cultural resources is low.

Indirect Effects

Operation and maintenance of Alternative E may result in indirect visual, auditory, and atmospheric effects to the North Chuckwalla Petroglyph District (CA-Riv-1383, NRHP listed), segments of a prehistoric trail (CA-Riv-053T, NRHP eligible), and the proposed DTC/C-AMA historic district (NRHP eligible).

Mitigation Measures CUL-1 through CUL-9, and measures developed as part of the MOA as described above, would reduce the impacts from operation and maintenance to these sensitive resources.

Decommissioning

Direct Effects

While no new areas of ground disturbance are proposed for decommissioning, decommissioning activities may not be limited to disturbing only previously disturbed soils at depth, and excavation for electrical wiring and steel support beams may occur to a deeper depth than excavation during construction. The decommissioning of Alternative E has a moderate potential to directly affect (i.e., damage or destroy) any buried archaeological sites that might be present. Therefore, the potential for adverse direct effects on cultural resources is moderate.

Mitigation Measures CUL-1 through CUL-9, and measures developed as part of the MOA would minimize the potential for direct impacts from solar facility decommissioning to as-yet-unidentified archaeological sites.

Together these mitigation measures would minimize the potential for direct effects from solar facility decommissioning to as-yet-unidentified archaeological sites.

Indirect Effects

Decommissioning of Alternative E may result in indirect visual, auditory, and atmospheric effects to the North Chuckwalla Petroglyph District (CA-Riv-1383, NRHP listed), segments of a prehistoric trail (CA-Riv-053T, NRHP eligible), and the proposed DTC/C-AMA historic district (NRHP eligible).

Mitigation Measures CUL-1 through CUL-9, and measures developed as part of the MOA as described above, would reduce the impacts from operation and maintenance to these sensitive resources.

Mitigation Measures

Mitigation Measures CUL-1 through CUL-9, and measures developed as part of the MOA as described above, are required to reduce adverse project effects related to cultural resources.

Residual Impacts and Unavoidable Adverse Effects

The unavoidable adverse effects of Alternative E would be the same as those discussed under Alternative B.

4.6.15 Cumulative Effects

This section evaluates the potential for DHSP, and other development projects within the vicinity of DHSP, to have cumulative effects to historic properties. These effects may result in a substantially adverse change in the significance of a historic property, potentially jeopardizing its eligibility for listing on the NRHP and CRHR.

Geographic Scope

For the cultural resources cumulative analysis, the regional scope was defined at two levels: local and regional. At the local level, the geographic area considered for cumulative impacts on cultural resources is a loosely defined area on either side of I-10 between Desert Center and Blythe in eastern Riverside County, hereafter referred to as the I-10 Corridor. This corridor overlaps to a large extent with BLM's California Desert Conservation Area (CDCA). The Corridor does not have strictly defined boundaries, and therefore does not have an area. However, the area is broadly equivalent to a 4-mile-wide strip (2 miles to either side of I-10) and 48 miles long, between Blythe and Desert Center (Figure 4.1-1). The area of this strip is 192 square miles (122,440 acres). This region was chosen because of its geographical proximity to the proposed project, the large number of recent cultural resources work conducted in the region associated with other large proposed projects, and the broadly similar cultural resources found in the region.

Although the total number of cultural resources present in this area is unknown, a rough order of magnitude estimate can be derived (Table 4.6.2) based on recent surveys related to four proposed solar power projects (Desert Sunlight Solar Farm, Genesis Solar Energy Project, Palen Solar Power Project and Blythe Solar Power Project) which surveyed a total of 29,574 acres (Chandler et al. 2010; Farmer et al. 2009; Keller 2010; Tennyson and Apple 2010). These projects recorded 554 cultural resources, indicating that the Corridor has an average site density of 0.019 cultural resources per acre, and 0.002 potentially eligible resources (historic properties) per acre. This figure suggests that the Corridor originally contained approximately 2,326 cultural resources, 245 of which may have been eligible for the NRHP and the CRHR and therefore considered historic properties.

The information available in The Eastern Information Center (EIC) of the California Historical Resources Information System (CHRIS) and from similar BLM databases are not detailed enough to support a substantive qualitative cumulative analysis. However, the Desert Training Center Cultural Landscape and Prehistoric Trails Network Cultural Landscape studies designed by the California Energy Commission for the I-10 Corridor are intended to facilitate the development of just such a database. This work is ongoing. In the meantime, information from these four proposed solar projects can also provide a rough idea of the types of historic properties present within the I-10 Corridor (Chandler et al. 2010; Farmer et al. 2009; Keller 2010; Tennyson and Apple 2010). Pedestrian surveys associated with these projects show that the majority of historic properties in the region are archaeological sites, approximately 16percent of which are prehistoric and 80percent are historic. Ethnographic sources suggest that portions of the Mojave Desert distant from water sources were primarily used for travel and ritual activities

rather than for the collection of resources (Cleland 2005). Other common activities are associated with the collection and processing of wild resources around the edges of the intermittent lakes and quarrying for material for stone tools and ground stone. These sites primarily consist of trails, trail-associated ceramic scatters and petroglyphs, sparse artifact scatters, lithic quarries and possible temporary campsites. The sparse artifact scatters are primarily prehistoric flakes and cores. These tend to blend into the prehistoric isolates, which are also predominantly lithics, forming a landscape with regular but diffuse evidence of prehistoric human activities. Historic period sites are associated with historic mining, movement through the area by automobile, and WWII era maneuvers associated with the DTC/C-AMA. These sites are primarily debris scatters. Some are mainly domestic debris and may have been dumped by passing travelers or off-road vehicle drivers. Others are a mix of domestic military debris, suggesting they are the remains of temporary military camps that were part of the DTC/C-AMA. Occasional military features such as earthen mounds and possible foxholes have also been noted. The historic-period isolates reflect these same kinds of activities.

Table 4.6-2. Cumulative Analysis Results: Estimated Number of Cultural Resources per Acre

Location	Acres	Number of Known Cultural Resources	Number of Potentially Eligible Cultural Resources
Desert Sunlight Genesis Blythe Palen	29,574	554 = Average Density of 0.019 sites per acre	70 = Average Density of 0.002 sites per acre
		Estimated Number of Cultural Resources (Acres x 0.019)	Estimated Number of Potentially Eligible Cultural Resources (Acres x 0.002)
I-10 Corridor	122, 440	2, 326	245
Southern California Desert Region	11,000,000	209,000	22,000
Existing Projects, I-10 Corridor			
Chuckwalla Valley Prison and Ironwood Prison	1,720	33	3
I-10 Freeway	2,328	44	5
2 Transmission Lines and 1 Gas Line	348	7	1
Blythe PV and Energy Projects	276	5	1
Chuckwalla Valley Raceway	400	8	1
Kaiser Eagle Mountain Mine	3,500	67	7
Subtotal	8,572	164	18
Reasonably Foreseeable Future Projects, I-10 Corridor			
2 Transmission Lines and 2 Substations	366	7	1
15 Energy Projects	47,141	896	94
Subtotal	47,507	903	95

At the regional level, the geographic area considered for cumulative impacts on cultural resources is defined as the 11-million acre BLM Southern California Desert Region. Unlike other parts of California that were more densely occupied in prehistory, little is known about the cultural resources of the desert region examined for this cumulative study. If the same average cultural resources density identified for the I-10 Corridor is applied to the Southern California Desert Region, the region may contain 209,000 cultural resources. Of these resources 22,000 of them may be eligible for the NRHP and the CRHR and therefore considered historic properties. Similarly,

according to the CHRIS only 20 percent of Riverside and San Bernardino counties have been surveyed for cultural resources. These studies have resulted in the identification and documentation of more than 20,000 cultural resources. These results suggest that there is a high potential to discover previously undocumented cultural resources within the cumulative study region.

This cumulative analysis for the proposed project and alternatives is based upon:

- Existing development projects on BLM, state, and private lands (Figure 4.1-1, Table 4.1-1).
- Foreseeable projects in the immediate vicinity of the I-10 Corridor (Figure 4.1.1, Table 4.1-2)

Cumulative Effects Analysis

Impacts of Existing Projects

Analysis of cumulative impacts of existing projects emphasized those projects and developments listed in Table 4.1-1 that are expansive and have disturbed the most acreage. Many of these projects were completed prior to the existence or regular enforcement of state and federal cultural resource laws. As such, the actual number of cultural resources within each project area and the number of cultural resources destroyed by the project is unknown. The following calculations are estimates.

I-10 Corridor

At the regional level, the construction of Chuckwalla Valley and Ironwood State Prisons disturbed approximately 1,720 acres. This cumulative analysis suggests that 33 cultural resources were destroyed during these projects, 3 of which may have been eligible for the NHRP and the CRHR and therefore considered historic properties.

The construction of I-10, a four-lane divided highway, with associated bridges, off-ramps, and berm system, also resulted in significant ground disturbance in the Corridor. Assuming a width of a minimum of 200 feet and a length of 48 miles, within the I-10 Corridor this project disturbed approximately 10,137,600 square feet (2,328 acres). This analysis suggests that 44 cultural resources were destroyed during this construction, 5 of which were eligible for the NHRP and the CRHR (historic properties).

Another linear project within the Corridor was the Devers-Palo Verde Transmission Line, a 500 kV transmission line paralleling I-10. The disturbance caused by the construction of transmission lines is generally less than the disturbance caused by freeway construction. However, each line has an associated access road. Based on the construction of the access road and excluding the transmission tower pads, a width of 20 feet for each project and a length of 48 miles was calculated for this analysis (116 acres). A similar calculation was made for the Blythe-Eagle Mountain Transmission Line and a natural gas line, both of which were constructed parallel to I-10. This analysis estimates that during the construction of these three linear projects, approximately 348 acres were disturbed, and 7 cultural resources were destroyed, 1 of which was likely to be eligible for the NHRP and the CRHR (historic property).

The construction of the Chuckwalla Valley Raceway, the Blythe PV Project and the Blythe Energy Project disturbed approximately 676 acres. This cumulative analysis suggests that 13 cultural resources were destroyed during these projects, 2 of which may have been eligible for the NHRP and the CRHR (historic properties).

Finally, the mining activities at the Kaiser Eagle Mountain Mine may have disturbed more than 3,500 acres. Several plans for the use of this disturbed area have been proposed, but, from the perspective of cultural resources, new projects would be unlikely to cause more damage than has already occurred.

In total, together, the larger of the ground-disturbing projects within the I-10 Corridor disturbed at least 8,572 acres, or 7 percent of the Corridor. One hundred and sixty-four of the estimated 2,326 cultural resources were likely destroyed by these projects. Of the 245 historic properties that would have been eligible for the NHRP and the CRHR within the I-10 Corridor, 18 would have been destroyed. Certain site types, particularly those associated with dry lakes may have been disproportionately affected. A more detailed cumulative analysis would be needed to determine if this was the case.

Southern California Desert Region

Within the larger Southern California Desert Region, the most intensive use of the desert and concomitant disturbance of cultural resources has been on designated military installations (e.g., Edwards Air Force Base, Fort Irwin, Twentynine Palms Marine Corps Base, Chocolate Mountain Naval Aerial Gunnery Range), and during General Patton's military training from 1942 to 1944, and during later training maneuvers in May, 1964, throughout the I-10 Corridor.

Cultural resources in the Southern California Desert Region have been primarily affected by past and currently approved projects through the ground disturbance that is required for construction of buildings, facilities, roads, and other infrastructure. Military training operations have been the most destructive, particularly at bombing ranges.

In the case of military installations and maneuvers, however, avoidance of substantial adverse changes to CRHR- and NRHP-eligible historic properties has been accomplished through deliberate project planning. Likewise, the severity of adverse effects to previously unknown cultural resources have been substantially reduced by a variety of strategies including implementing mitigation measures requiring construction monitoring, evaluation of cultural resources discovered during monitoring, and avoidance or data recovery for historic properties evaluated to be NRHP and CRHR-eligible.

Some of the physical evidence of military training exercises at the regional level are at least 50 years old and are therefore potentially CRHR- and NRHP-eligible historic properties. This is particularly the case for historic-period cultural resources associated with General Patton's Desert Training Center (DTC) described in detail in previous subsections. The use of heavy equipment and vehicles and the construction of camps, bunkers, and other features throughout the desert undoubtedly destroyed a number of prehistoric sites. In their place, we have a historic military district, with many individual resources that are known to be, or have the potential to be CRHR- or NRHP-eligible. Previous development within the region has already destroyed a number of DTC sites.

Impacts of Reasonably Foreseeable Future Projects

Cultural resources are also expected to be affected by the following reasonably foreseeable future projects. The future construction of residences and infrastructure in the local and regional cumulative analysis study areas will undoubtedly result in impacts to cultural resources. Some

of the projects included in this analysis may not be built. This analysis estimates the maximum number of cultural resources that may be destroyed.

I-10 Corridor

Numerous other projects are proposed and under consideration along the I-10 Corridor. It is assumed that the 15 proposed energy projects would destroy all of the cultural resources within the project limits for the purposes of this cumulative analysis. As discussed above, transmission lines are considered to have a smaller impact on cultural resources. Using the same conservative figures used previously, the 2 new transmission lines proposed for the I-10 Corridor would affect an area 20 feet wide and 48 miles long for each project (116 acres). When combined with the construction of 2 new substations, these linear projects would disturb 366 acres.

Together these reasonably foreseeable future projects would disturb 47,507 acres, or 39 percent of the total I-10 Corridor. This cumulative analysis suggests that these projects would destroy 903 cultural resources, 95 of which are likely to be CRHR- and NRHP-eligible historic properties.

Southern California Desert Region

Much of the Southern California Desert Region analyzed for this cumulative analysis consists of the CDCA. Eleven million acres of the 25-million-acre CDCA is managed by the BLM. Although there are undoubtedly other projects that have been proposed for this region, the projects proposed for construction within the BLM California Desert District make a reasonable proxy for patterns across the large area. Solar projects occupying 567,882 acres and wind projects occupying 433,721 acres have been proposed for this region, consisting of nearly 4 percent of the CDCA.

Although the cultural resources density per acre is unknown for this entire region, the density proposed for the I-10 Corridor serves as a reasonable minimum. The disturbance of 1 million acres would result in the destruction of at least 19,000 cultural resources, 2,000 of which are likely to be CRHR- and NRHP-eligible historic properties. If all of this construction took place, the majority of the projects would undergo CEQA and/or NEPA review. Cultural resources that could not be avoided would be tested to evaluate for NRHP eligibility, and eligible sites (historic properties) would be subject to historical documentation or data recovery excavations to mitigate effects. Although these measures would reduce most individual site effects, archaeological excavation and analysis cannot recover all the scientific values of a site. Based on the above, the cumulative loss of approximately 19,000 cultural resources is considered a substantial adverse effect that cannot be mitigated.

Construction of the solar and wind projects proposed throughout this region would result in substantial changes in the setting, feeling, and association of the areas in which they are constructed. These kinds of damages may be especially severe for traditional use areas and traditional cultural properties. Potential adverse effects would include direct effects in the form of physical disturbance or alteration as a result of construction activity or indirect effects in the form of diminished character and setting of traditional use areas due to the presence of industrial structures.

The Desert Harvest Solar Project in the Cumulative Context

The development of the DHSP, including Alternatives 4 through 7 and Alternatives C, D, and E, may result in permanent adverse effects to cultural resources related to construction activities

(Alternative B cumulative effects are described below). However, these adverse effects would be expected to contribute only a small amount to the possible permanent cumulative impacts related to cultural resources because relatively few resources may be eligible for the CRHR or NRHP. DHSP may have a substantial direct effect on 25 resources and an indirect effect on resources.

If the proposed mitigation measures CUL-1 through CUL-9 are properly implemented, the direct effects would be minimized from the DHSP. However, there would remain indirect adverse effects on one NRHP-listed historic district, one proposed historic district, segments of a prehistoric trail, and one historic archaeological site. Effects of the DHSP alternatives would additively combine with impacts from past, present, and reasonably foreseeable projects, and cumulative effects on cultural resources at both the local I-10 Corridor and regional levels would be substantial and adverse. This analysis estimates that more than 800 cultural resources within the I-10 Corridor, and 17,000 cultural resources within the Southern California Desert Region, will potentially be destroyed. Mitigation can reduce the impact of this destruction, but unavoidable adverse cumulative effects would remain.

Summary of Cumulative Impacts

Effects of the DHSP alternatives would additively combine with impacts from past, present, and reasonably foreseeable projects, and cumulative effects on cultural resources at both the local I-10 Corridor and regional levels would be substantial and adverse.

The majority of the proposed future projects examined in this analysis would likely undergo CEQA and/or NEPA review. Archaeological sites that could not be avoided would be tested to evaluate NRHP and CRHR eligibility. NRHP and CRHR-eligible historic properties would be subject to historical documentation or data recovery excavations to mitigate effects. Although these measures would reduce effects individual historic properties, archaeological excavation and analysis cannot recover all the scientific values of a site.

This analysis estimates that more than 900 cultural resources within the I-10 Corridor, and 17,000 cultural resources within the Southern California Desert Region, will potentially be destroyed. Some of these sites may be archaeological sites, some of these may be sites to which tribes attach cultural or religious significance, and some may be a combination of the two. The destruction of cultural resources results in the loss of information, but may also cause irreparable damage to the cultural and spiritual values of some resources. In terms of the loss of information, mitigation can reduce the impact of this destruction, but unavoidable adverse effects would remain. In terms of cultural and spiritual impacts, the nature of these impacts and potential mitigation measures can only be determined by members of the community who value the resources and landscapes, in this case Native Americans. Because only they can suggest possible mitigation, if any, this cumulative impact may be unavoidable.

Under the cumulative scenario for Alternative B, which considers that the DSSF gen-tie is constructed and the DHSP gen-tie is located on shared poles with no additional ground disturbance, the DHSP gen-tie would result in no net cumulative impacts on cultural resources in combination with the reasonably foreseeable DSSF gen-tie line. Alternative B would not contribute to cumulative effects.

4.6.16 CEQA Considerations

This section is included in this EIS and CDCA Plan Amendment for future use by CEQA Lead and Responsible agencies and is not required under NEPA.

CEQA Significance Criteria

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. They are used to determine whether the proposed project or alternatives would result in significant impacts under CEQA related to cultural resources. Under CEQA, the proposed project would cause a significant impact if it caused a substantial adverse change in the significance of a historical resource or an archeological resource as defined under CCR, Title 14, Chapter 3, Section 15064.5. The proposed project would have a significant impact on cultural resources if it would:

CR-1 Cause a substantial adverse change in the significance of a historical resource;

CR-2 Cause a substantial adverse change in the significance of an archaeological resource;

CR-3 Disturb any human remains, including those interred outside of formal cemeteries.

Under all of these criteria, adverse changes and impacts are the following:

- Physical, visual, or audible disturbances resulting from construction and development that would affect the integrity of a resource or the qualities that make it eligible for the CRHR or NRHP;
- Exposure of cultural resources to vandalism or unauthorized collecting;
- A substantial increase in the potential for erosion or other natural processes that could affect cultural resources;
- Neglect of a cultural resource that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to a Native American tribe; or
- Transfer, lease, or sale of a cultural resource out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the resource's historic significance.

CEQA Significance Determination

Alternative 1. Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, the proposed solar energy project would not be constructed and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended. It is expected that the site would remain in its existing condition, with no new structures or facilities constructed or operated and no ground disturbance. No significant impacts to cultural resources would result from Alternative 1. Alternative 1 would not contribute to any significant cumulative impact, as defined in CEQA.

Alternative 2. Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the proposed DHSP would not be constructed and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan.

Any future project would be reviewed under a separate NEPA analysis. No significant impacts to cultural resources would result from the DHSP. Alternative 2 would not contribute to any significant cumulative impact, as defined in CEQA.

Alternative 3. Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the proposed DHSP would not be constructed and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. Any future project would be reviewed under a separate NEPA analysis. No significant impacts to cultural resources would result from the DHSP. Alternative 3 would not contribute to any significant cumulative impact, as defined in CEQA.

Alternative 4. Under Alternative 4, the Applicant's proposed solar facility site, the direct and indirect impacts of project construction, operation, and decommissioning, to cultural resources as described in Section 4.6.6 would be significant under criteria CR-1 (adverse change to significance of historic resources) and CR-2 (adverse change to significance of archaeological resources), above. Impacts significant under criteria CR-3 (disturbance of human remains) are possible, but not anticipated.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-9, some of these impacts to cultural resources would be mitigated to less than significant levels under CEQA by: developing and implementing an MOA and HPTP that will guide all project cultural resources work, retaining a qualified cultural resources specialist to prepare the HPTP and implement it, training for all construction personnel, requiring expert monitoring of all ground disturbance, ensuring that cultural resources specialists have the authority to halt construction in the event of a discovery, treating inadvertent discoveries using the guidance of the MOA and HPTP, requiring documentation of interim results of the construction monitoring program, requiring final documentation of all discoveries during construction, and requiring curation for any cultural resources finds.

Under criterion CR-1, impacts of Alternative 4 would be less than significant with implementation of MM CUL-1 thorough MM CUL 10. Under criterion CR-2, impacts of Alternative 4 would be less than significant. Under criterion CR-3, Alternative 4 would have no impact.

In addition to implementation of Mitigation Measures CUL-1 through CUL-9, Mitigation Measure CUL-10 (Radio Program) is required to reduce indirect and cumulative impacts to the proposed DTC/C-AMA historic district (determined NRHP eligible) and WWII era archaeological site P-33-18392 (determined NRHP eligible). MM CUL-10 would only be required for CEQA Lead and Responsible agencies and is not required under NEPA.

MM CUL-10 Radio Program. A continuous loop radio program focused on motorists on I-10, an appropriate broadcasting location, and associated signage in Desert Center and on I-10 near Desert Center shall be developed, broadcast and installed. The radio program shall provide information about the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the Coco-Maricopa trail segments (CA-RIV-0053T, determined eligible), and Native American values associated with these sites. Content shall be developed in consultation with all interested tribes. In addition, the program shall provide information about the DTC/C-AMA in general, archaeological site P-33-18392 in particular, and other details about Desert

Training Center activities in the Desert Center vicinity. The broadcast shall be maintained for the life of the project, and updated with relevant new information every five years.

The construction impacts of Alternative 4, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels.

Alternative 5. Under Alternative 5, the direct and indirect impacts of project construction, operation, and decommissioning, to cultural resources as described in Section 4.6.7 would be significant under criteria CR-1 (adverse change to significance of historic resources) and CR-2 (adverse chance to significance of archaeological resources), above. Impacts significant under criteria CR-3 (disturbance of human remains) are possible, but not anticipated.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-10, some of these impacts to cultural resources would be mitigated to less than significant levels under CEQA by: developing and implementing an MOA and HPTP which will guide all project cultural resources work, retaining a qualified cultural resources specialist to prepare the HPTP and implement it, training for all construction personnel, requiring expert monitoring of all ground disturbance, ensuring that cultural resources specialists have the authority to halt construction in the event of an discovery, treating inadvertent discoveries using the guidance of the MOA and HPTP, requiring documentation of interim results of the construction monitoring program, requiring final documentation of all discoveries during construction, requiring curation for any cultural resources finds, and addressing impacts to the DTC/C-AMA historic district through a radio program for passing motorists on I-10.

Under criterion CR-1, impacts of Alternative 5 would be less than significant with implementation of MM CUL-1 thorough MM CUL 10. Under criterion CR-2, impacts of Alternative 5 would be less than significant. Under criterion CR-3, Alternative 5 would have no impact.

The construction impacts of Alternative 5, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels.

Alternative 6. Under Alternative 6, the direct and indirect impacts of project construction, operation, and decommissioning, to cultural resources as described in Section 4.6.8 would be significant under criteria CR-1 (adverse change to significance of historic resources) and CR-2 (adverse chance to significance of archaeological resources), above. Impacts significant under criteria CR-3 (disturbance of human remains) are possible, but not anticipated.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-10, some of these impacts to cultural resources would be mitigated to less than significant levels under CEQA by: developing and implementing an MOA and HPTP which will guide all project cultural resources work, retaining a qualified cultural resources specialist to prepare the HPTP and implement it, training for all construction personnel, requiring expert monitoring of all ground disturbance, ensuring that cultural resources specialists have the authority to halt construction in the event of an discovery, treating inadvertent discoveries using the guidance of the MOA and HPTP, requiring documentation of interim results of the construction monitoring program, requiring final documentation of all discoveries during construction, requiring curation for any cultural resources

finds, and addressing impacts to the DTC/C-AMA historic district through a radio program for passing motorists on I-10.

Under criterion CR-1, impacts of Alternative 6 would be less than significant with implementation of MM CUL-1 thorough MM CUL 10. Under criterion CR-2, impacts of Alternative 6 would be less than significant. Under criterion CR-3, Alternative 6 would have no impact.

The construction impacts of Alternative 6, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels.

Alternative 7. Under Alternative 7, the direct and indirect impacts of project construction, operation, and decommissioning, to cultural resources as described in Section 4.6.8 would be significant under criteria CR-1 (adverse change to significance of historic resources) and CR-2 (adverse chance to significance of archaeological resources), above. Impacts significant under criteria CR-3 (disturbance of human remains) are possible, but not anticipated.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-10, some of these impacts to cultural resources would be mitigated to less than significant levels under CEQA by: developing and implementing an MOA and HPTP which will guide all project cultural resources work, retaining a qualified cultural resources specialist to prepare the HPTP and implement it, training for all construction personnel, requiring expert monitoring of all ground disturbance, ensuring that cultural resources specialists have the authority to halt construction in the event of an discovery, treating inadvertent discoveries using the guidance of the MOA and HPTP, requiring documentation of interim results of the construction monitoring program, requiring final documentation of all discoveries during construction, requiring curation for any cultural resources finds, and addressing impacts to the DTC/C-AMA historic district through a radio program for passing motorists on I-10.

Under criterion CR-1, impacts of Alternative 7 would be less than significant with implementation of MM CUL-1 thorough MM CUL 10. Under criterion CR-2, impacts of Alternative 7 would be less than significant. Under criterion CR-3, Alternative 7 would have no impact.

The construction impacts of Alternative 7, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels.

Alternative A. Under Alternative A, no gen-tie line would be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, the proposed gen-tie line would not be constructed and BLM would continue to manage the ROW consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended (including the Desert Sunlight amendment). It is expected that the Desert Sunlight gen-tie line would be built within the ROW, and that impacts to vegetation resources would be as described in the Desert Sunlight EIS (BLM 2011). No significant impacts to cultural resources would result from Alternative A. Alternative A would not contribute to any significant cumulative impact.

Alternative B. Under Alternative B, the Applicant's proposed gen-tie line, the direct and indirect impacts of project construction, operation, and decommissioning, to cultural resources as described in Section 4.6.11 would be significant under criteria CR-1 (adverse change to significance of historic resources) and CR-2 (adverse chance to significance of archaeological

resources), above. Impacts significant under criteria CR-3 (disturbance of human remains) are possible, but not anticipated.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-10, some of these impacts to cultural resources would be mitigated to less than significant levels under CEQA by: developing and implementing an MOA and HPTP which will guide all project cultural resources work; retaining a qualified cultural resources specialist to prepare the HPTP and implement it; training for all construction personnel; requiring expert monitoring of all ground disturbance; ensuring that cultural resources specialists have the authority to halt construction in the event of a discovery; treating inadvertent discoveries using the guidance of the MOA and HPTP; requiring documentation of interim results of the construction monitoring program; requiring final documentation of all discoveries during construction; requiring curation for any cultural resources finds; and addressing indirect and cumulative impacts to the North Chuckwalla Petroglyph District, the Coco-Maricopa trail segments, the proposed DTC/C-AMA historic district, and WWII era archaeological site P-33-18392 through a radio program for passing motorists on I-10.

In addition to implementation of Mitigation Measures CUL-1 through CUL-9, CUL-10 (which would reduce indirect and cumulative impacts to the North Chuckwalla Petroglyph District [CA-RIV-1383, NRHP-listed], the Coco-Maricopa trail segments [CA-RIV-0053T, determined eligible], the proposed DTC/C-AMA historic district [determined NRHP eligible] and WWII era archaeological site P-33-18392 [determined NRHP eligible]) would be required to reduce impacts to the extent feasible, and Mitigation Measure CUL-11 (Avoid Known Resources) is required to ensure protection of known historical resources (eligible for the CRHR) and unevaluated cultural resources (potentially eligible for the CRHR), and to reduce potential impacts to these resources to a less than significant level. The Desert Center Town Dump (CA-Riv-9385, determined NRHP eligible) is too large to avoid. However, data recovery has been conducted at this site as part of mitigation of impacts associated with the Desert Sunlight Solar Project. The proposed impacts of the DHSP are in the same portion of the site. BLM and the County agree that mitigation conducted by other parties is considered sufficient to address the impacts of both projects. Avoidance of only certain portions of this site is required. MM CUL-11 would only be required for CEQA Lead and Responsible agencies and is not required under NEPA.

MM CUL-11 **Avoid Known Resources**. Known historical resources (eligible for CRHR) and unevaluated cultural resources (potentially eligible for the CRHR) shall be flagged and avoided. In addition, at any known historical resource within 165 feet (50 meters) of the project area, the limits of the project area near the resource shall be marked with visible flagging tape prior to construction. The construction crews shall be instructed that no vehicle access, travel, equipment staging, storage, or other construction-related work shall occur outside the flagged areas to ensure that known historic resources are not inadvertently damaged during implementation of the project. Within the boundaries of the Desert Center Town Dump (CA-Riv-9385) the limits of the project area shall be marked as described above, ensuring that no construction-related work shall occur within site boundaries other than strictly within the marked project area.

However, some impacts, particularly to the setting of the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed) and the Coco-Maricopa trail segments (CA-RIV-0053T, determined eligible), are unavoidable and significant under CEQA.

Under criterion CR-1, impacts of Alternative B would be less than significant with implementation of MM CUL-1 thorough MM CUL 11. Under criterion CR-2, impacts of Alternative B would be significant and unavoidable. Under criterion CR-3, Alternative B would have no impact.

The construction impacts of Alternative B, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels.

Alternative C. Under Alternative C, the direct and indirect impacts of project construction, operation, and decommissioning, to cultural resources as described in Section 4.6.12 would be significant under criteria CR-1 (adverse change to significance of historic resources) and CR-2 (adverse chance to significance of archaeological resources), above. Impacts significant under criteria CR-3 (disturbance of human remains) are possible, but not anticipated.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-11, some of these impacts to cultural resources would be mitigated to less than significant levels under CEQA by: developing and implementing an MOA and HPTP which will guide all project cultural resources work; retaining a qualified cultural resources specialist to prepare the HPTP and implement it; training for all construction personnel; requiring expert monitoring of all ground disturbance; ensuring that cultural resources specialists have the authority to halt construction in the event of a discovery; treating inadvertent discoveries using the guidance of the MOA and HPTP; requiring documentation of interim results of the construction monitoring program; requiring final documentation of all discoveries during construction; requiring curation for any cultural resources finds; addressing indirect and cumulative impacts to the North Chuckwalla Petroglyph District, the Coco-Maricopa trail segments, and the proposed DTC/C-AMA historic district, through a radio program for passing motorists on I-10; and avoiding all known resources within the project area except CA-Riv-9385; and avoiding known historical resources and unevaluated cultural resources.

However, some impacts, particularly to the setting of the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed) and the Coco-Maricopa trail segments (CA-RIV-0053T, determined eligible), are unavoidable and significant under CEQA.

Under criterion CR-1, impacts of Alternative C would be less than significant with implementation of MM CUL-1 thorough MM CUL 11. Under criterion CR-2, impacts of Alternative C would be significant and unavoidable. Under criterion CR-3, Alternative C would have no impact.

The construction impacts of Alternative C, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels.

Alternative D. Under Alternative D, the direct and indirect impacts of project construction, operation, and decommissioning, to cultural resources as described in Section 4.6.13 would be significant under criteria CR-1 (adverse change to significance of historic resources) and CR-2 (adverse chance to significance of archaeological resources), above. Impacts significant under criteria CR-3 (disturbance of human remains) are possible, but not anticipated.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-11, some of these impacts to cultural resources would be mitigated to less than significant levels under CEQA by: developing and implementing an MOA and HPTP which will guide all project cultural resources work; retaining a qualified cultural resources specialist to prepare the HPTP and implement it; training for all construction personnel; requiring expert monitoring of all ground disturbance; ensuring that cultural resources specialists have the authority to halt construction in the event of a discovery; treating inadvertent discoveries using the guidance of the MOA and HPTP; requiring documentation of interim results of the construction monitoring program; requiring final documentation of all discoveries during construction; requiring curation for any cultural resources finds; addressing indirect and cumulative impacts to the North Chuckwalla Petroglyph District, the Coco-Maricopa trail segments, the proposed DTC/C-AMA historic district, and WWII era archaeological site P-33-18392 through a radio program for passing motorists on I-10; and avoiding all known resources within the project area except CA-Riv-9385; and avoiding known historical resources and unevaluated cultural resources.

However, some impacts, particularly to the setting of the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed) and the Coco-Maricopa trail segments (CA-RIV-0053T, determined eligible), are unavoidable and significant under CEQA.

Under criterion CR-1, impacts of Alternative D would be less than significant with implementation of MM CUL-1 thorough MM CUL 11. Under criterion CR-2, impacts of Alternative D would be significant and unavoidable. Under criterion CR-3, Alternative D would have no impact.

The construction impacts of Alternative D, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels.

Alternative E. Under Alternative E, the direct and indirect impacts of project construction, operation, and decommissioning, to cultural resources as described in Section 4.6.14 would be significant under criteria CR-1 (adverse change to significance of historic resources) and CR-2 (adverse chance to significance of archaeological resources), above. Impacts significant under criteria CR-3 (disturbance of human remains) are possible, but not anticipated.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-11, some of these impacts to cultural resources would be mitigated to less than significant levels under CEQA by: developing and implementing an MOA and HPTP which will guide all project cultural resources work; retaining a qualified cultural resources specialist to prepare the HPTP and implement it; training for all construction personnel; requiring expert monitoring of all ground disturbance; ensuring that cultural resources specialists have the authority to halt construction in the event of a discovery; treating inadvertent discoveries using the guidance of the MOA and HPTP; requiring documentation of interim results of the construction monitoring program; requiring final documentation of all discoveries during construction; requiring curation for any cultural resources finds; addressing indirect and cumulative impacts to the North Chuckwalla Petroglyph District, the Coco-Maricopa trail segments, and the proposed DTC/C-AMA historic district, through a radio program for passing motorists on I-10; and avoiding all known resources within the project area except CA-Riv-9385; and avoiding known historical resources and unevaluated cultural resources.

However, some impacts, particularly to the setting of the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed) and the Coco-Maricopa trail segments (CA-RIV-0053T, determined eligible), are unavoidable and significant under CEQA.

Under criterion CR-1, impacts of Alternative E would be less than significant with implementation of MM CUL-1 thorough MM CUL 11. Under criterion CR-2, impacts of Alternative E would be significant and unavoidable. Under criterion CR-3, Alternative E would have no impact.

The construction impacts of Alternative E, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels.

4.7 PALEONTOLOGY

Most impacts on paleontological resources are direct and result from ground disturbance activities. Indirect impacts include the potential for increased unauthorized collection of fossils and other paleontological resources resulting from increased numbers of people in the vicinity (i.e., personnel involved in construction and operation of proposed project facilities). Areas with high potential for paleontological resources are evaluated for the amount and type of disturbance and activities that would result in impacts on paleontological resources.

4.7.1 Methodology for Analysis

A Potential Fossil Yield Classification (PFYC) for paleontological resources (Roeder 2011) and two paleontological resources assessments were prepared (Roeder 2012a, 2012b) for the Desert Harvest Solar Project (DHSP). Correspondence from the Natural History Museum of Los Angeles County and the University of California at Berkeley Museum of Paleontology (UCMP) were reviewed for information regarding known fossil localities and stratigraphic unit sensitivity within the proposed project area. All research was conducted in accordance with BLM and the Society for Vertebrate Paleontology's accepted assessment protocol to determine whether any known paleontological resources exist in the general area and how they might be impacted by the Proposed Action and action alternatives. As noted in Section 3.1, lack of access to Metropolitan Water District of Southern California (MWDSC) lands has prohibited full surveys of all gen-tie alternatives. Given site constraints, however, this circumstance is allowed under NEPA.

4.7.2 Applicant Measures

The following Applicant Measure (AM) has been incorporated as a design feature of the proposed project and all action alternatives to reduce adverse impacts associated with the project.

AM-PAL-1 The Applicant shall be responsible for the following measures:

- A qualified paleontologist will conduct a study to further characterize the paleontological sensitivity of the project study area.
- Prior to construction the Applicant will retain a qualified Project Paleontologist to design and implement a mitigation program during project-related earth-moving activities. The paleontological resource mitigation program will include the preparation of mitigation and monitoring plan for construction monitoring; emergency discovery procedures; sampling and data recovery, if needed; museum storage coordination for any specimen and data recovered; pre-construction coordination; and reporting.
- Construction personnel involved with earth-moving activities will be informed by the Project Paleontologist of the possibility of encountering fossils, how to identify fossils, and proper notification procedures. This worker training will be prepared and presented by a qualified paleontologist. A construction contractor superintendent will be identified and provided with contact information for notifying the Project Paleontologist if any potential paleontological resources are encountered during construction.
- Grading and excavation within old alluvium or earthmoving at depths greater than 10 feet should be monitored by a qualified paleontologist, along with older alluvium which occurs at depths less than 10 feet.

The mitigation measures below further clarify or expand upon the AM above, as it relates to reporting requirements, timing of implementation, or other details. Where there is a conflict between provisions of the mitigation measures imposed and the preceding AM, the mitigation measures take precedence.

4.7.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, impacts would not occur.

4.7.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.7.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.7.6 Alternative 4 – Proposed Solar Project

Under Alternative 4, the proposed DHSP solar facility would be approved by BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy developments. A 150 megawatt solar generating facility would then be built on two parcels, the northern parcel consisting of 1,052 acres and the southern parcel consisting of 155 acres. Alternative 4 would impact at least one previously identified fossil locality consisting of Gopherus (tortoise) found in the Quaternary alluvium in the eastern portion of the solar facility. The geologic unit underlying these two parcels is Quaternary alluvium (Qal) and possibly Quaternary-Tertiary playa sediments (QT), both of which have been assigned a Class 4-High sensitivity rating under the BLM PYFC. As such, there is a possibility that as-yet-unidentified significant paleontological resources could be adversely affected.

Construction

Direct Effects

The geologic units present at the site have a high potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The physical disturbance of the geologic units present at the site during construction of the solar facility could directly impact (i.e., damage or destroy) any fossils that might be present. Therefore, the potential for adverse direct effects on paleontological resources is high.

Mitigation Measure (MM) PAL-1 (Project Paleontological Staff) outlines the qualifications of all individuals conducting paleontological work within the proposed project area; MM PAL-2 (Paleontological Mitigation and Monitoring Plan) outlines the details of how monitoring and mitigation would be conducted for the disturbance of undisturbed strata in rock units of high sensitivity; MM PAL-3 (Authority to Halt Ground Disturbance) emphasizes the authority of paleontological staff to halt construction equipment if necessary; MM PAL-4 (Paleontological Worker Environmental Awareness Program) would require training of all construction personnel; MM PAL-5 (Construction Monitoring for Paleontological Resources) would require full-time monitoring of undisturbed rock strata of high sensitivity; MM PAL-6 (Paleontological Reporting) outlines how and when the results of paleontological monitoring and mitigation is reported; MM PAL-7 (Curation of Paleontological Materials) specifies how and when any fossils or related documentation should be stored after it is collected; and MM PAL-8 (Pre-construction Paleontological Subsurface Excavation) outlines field work and laboratory analysis necessary prior to construction in a project area underlain completely by rock strata of high paleontological sensitivity. Together these mitigation measures would minimize the potential for direct impacts from solar facility construction to paleontological resources.

Indirect Effects

The geologic units present at the site have a high potential to contain vertebrate fossils and other scientifically valuable paleontological resources. Indirect effects include the potential for increased unauthorized collection of fossils and other paleontological resources resulting from increased numbers of people in the vicinity. Project construction would increase the number of personnel in the project area. Therefore, the potential for adverse indirect effects on paleontological resources is high. Mitigation Measure MM PAL-4 (Paleontological Worker Environmental Awareness Program) would require training of all construction personnel, and would minimize the potential for indirect impacts from solar facility construction to fossil resources.

Operation and Maintenance

Direct Effects

Operations would not disturb any previously undisturbed areas of the solar facility site. No direct effects to paleontological resources associated with operation and maintenance of Alternative 4 would occur.

Indirect Effects

The geologic units present at the site have high potential to contain vertebrate fossils and other scientifically valuable paleontological resources; however, the density of surface deposits of

scientifically significant fossils is expected to be low. Indirect impacts that may occur during operation and maintenance of Alternative 4 include the potential for increased unauthorized collection of fossils and other paleontological resources resulting from increased numbers of visitors in the vicinity of the solar facility. While no visitor center is proposed as a part of the solar facility, and visitors would not typically be allowed onto the site, there is the potential for the solar facility to attract a small number of visitors who would drive and park along the periphery of the solar facility, within the gen-tie ROW and the vicinity, particularly during the first few years of operation. In the absence of a visitor center, visitation is expected to be low. In addition, the density of surface deposits of scientifically significant fossils is expected to be low. Finally, any rare fossils exposed on the surface of the approved gen-tie corridor will be collected by a qualified paleontologist during implementation of MM PAL-5 (Construction Monitoring for Paleontological Resources). The potential for indirect effects from operation and maintenance of Alternative 4 on paleontological resources is therefore low, and no mitigation is necessary.

Decommissioning

Direct Effects

The geologic units present at the site have a high potential to contain vertebrate fossils and other scientifically valuable paleontological resources. While a majority of rare fossils and other significant paleontological resources would be identified during surface-disturbing activities associated with construction, decommissioning activities may not be limited to disturbing only previously disturbed soils, and excavation for electrical wiring and steel support beams may occur to a deeper depth than excavation during construction. The physical disturbance of the geologic units present at the site during decommissioning of the solar facility could directly impact (i.e., damage or destroy) any fossils that might be present in remaining undisturbed soils. Therefore, the potential for direct impacts on paleontological resources is high. All mitigation measures PAL-1 through PAL-8 would be required during decommissioning of the solar facility.

Indirect Effects

Indirect effects from decommissioning of the solar facility are identical to those during construction (unauthorized fossil collection by personnel). MM PAL-4 (Paleontological Worker Environmental Awareness Program) would require training of all decommissioning personnel, and would minimize the potential for indirect impacts to fossil resources from Alternative 4 decommissioning.

Mitigation Measures

The following mitigation measures would reduce potential adverse effects to paleontological resources.

MM PAL-1 Project Paleontological Staff.

Project Paleontologist – Prior to the issuance of a Notice to Proceed by BLM, a qualified paleontologist approved by the BLM to serve as Project Paleontologist shall be retained by the project owner. This individual shall retain a BLM paleontological resource use permit for the project and a paleontological permit from the County of Riverside. To do so this individual shall have the following qualifications as stipulated in BLM Manual 8270-1:

a. Professional instruction in a field of paleontology relevant to the work proposed (vertebrate, invertebrate, trace, paleobotany, etc.), obtained through:

   (1) Formal education resulting in a graduate degree from an accredited institution in paleontology, or in geology, biology, botany, zoology or anthropology if the major emphasis is in paleontology; OR

   (2) Equivalent paleontological training and experience including at least 24 months under the guidance of a professional paleontologist who meets qualification above that provided increased responsibility leading to professional duties similar to those in qualification above; and

b. Demonstrated experience in collecting, analyzing, and reporting paleontological data, similar to the type and scope of work proposed in the application;

c. Demonstrated experience in planning, equipping, staffing, organizing, and supervising crews performing the work proposed in the application;

d. Demonstrated experience in carrying paleontological projects to completion as evidenced by timely completion and/or publication of theses, research reports, scientific papers and similar documents.

The resume of the proposed Project Paleontologist will be submitted to BLM, in consultation with the BLM regional paleontologist, for review and approval.

As described in BLM IM 2009-011, the Project Paleontologist will serve as the Principal Investigator (PI) under the BLM permit and is responsible for all actions under the permit, for meeting all permit terms and conditions, and for the performance of all other personnel. This person is also the contact person for the project proponent and the BLM.

Additional Paleontological Staff – The Project Paleontologist may obtain the services of Paleontological Field Agents, Field Monitors, and Field Assistants, if needed, to assist in mitigation, monitoring, and curation activities. These individuals must meet the qualifications described in BLM IM 2009-011, and their resumes must be reviewed and approved by BLM prior to beginning work.

MM PAL-2 **Paleontological Mitigation and Monitoring Plan (PMMP).** Prior to the issuance of a Notice to Proceed by BLM, the Project Paleontologist shall submit a Paleontological Mitigation and Monitoring Plan (PMMP) for the project to the BLM for review and approval. The appropriate Paleontology Lead or Regional Paleontologist shall review the plan for sufficiency prior to acceptance. The PMMP shall be prepared and implemented under the direction of the Project Paleontologist and shall address and incorporate MM PAL-1 through MM PAL-8. The PMMP shall be prepared at the sole expense of the project proponent, and be based on Society of Vertebrate Paleontology (SVP) assessment and mitigation guidelines and meet all BLM and Riverside County regulatory requirements. A monitoring plan indicates the avoidance or treatments recommended for the area of the proposed disturbance and must minimally address the following:

1. Identification and mapping of impact areas of high sensitivity that will be monitored during construction;

2. A coordination strategy to ensure that a qualified paleontologist (MM PAL-1) will conduct monitoring at the appropriate locations at the appropriate intensity;
3. The significance criteria to be used to determine which resources will be avoided or recovered for their data potential;
4. Procedures for the discovery, recovery, preparation, and analysis of paleontological resources encountered during construction, in accordance with standards for recovery established by the SVP and the BLM;
5. Provisions for verification that the project proponent has an agreement with a recognized museum repository, for the disposition of recovered fossils and that the fossils shall be prepared prior to submittal to the repository as required by the repository (e.g., prepared, analyzed at a laboratory, curated, or cataloged);
6. Specifications that all paleontological work undertaken by the project proponent on public land shall be carried out by qualified paleontologists with appropriate current permits (MM PAL-1), including but not limited to a Paleontological Resources Use Permit (for work on public lands administered by BLM) and a Riverside County permit (for work on lands administered by the County of Riverside);
7. Description of monitoring reports that will be prepared which shall include daily logs, monthly reports, and a final monitoring report with an itemized list of specimens found to be submitted to the BLM, the Riverside County Planning Department, the project proponent and the designated repository within 90 days of the completion of monitoring;
8. The implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the ground-disturbance and post-ground–disturbance analysis phases of the project shall be specified; and
9. Person(s) expected to perform each of the tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team shall be identified.
10. All impact-avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation shall be described. Any areas where these measures are to be implemented shall be identified. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related impacts.

MM PAL-3 **Authority to Halt Ground Disturbance.** As specified in BLM IM 2009-011, if significant fossil material is discovered during construction activities, the Project Paleontologist, Field Agents, and Field Monitors have the authority to temporarily halt surface disturbing actions until an assessment of the find is completed and appropriate protection measures taken. The length of time ground disturbance

will be halted, the size of the area where work is halted, and the details of the assessments and treatments are described in detail in the PMMP (MM PAL–2). Work may not resume until approval is granted from both the Project Paleontologist and the BLM Authorized Officer.

MM PAL-4 **Paleontological Worker Environmental Awareness Program (WEAP).** Prior to issuing a BLM Notice to Proceed, the project proponent shall submit evidence of that WEAP training has been provided to construction supervisors and crew to ensure their awareness of requirements regarding the protection of paleontological resources and procedures to be implemented in the event fossil remains are encountered by ground-disturbing activities. This training will be prepared by the Project Paleontologist (MM PAL-1), reviewed and approved by the BLM, and presented by a qualified paleontologist. All construction supervisors and crew-members shall be required to undergo paleontological WEAP training prior to commencement of ground-disturbing activities or prior to beginning work on the project site. WEAP training shall also be required for decommissioning personnel.

MM PAL-5 **Construction Monitoring for Paleontological Resources.** The project proponent shall continuously comply with the following during all ground disturbing activities during project construction and operations:

1. If project ground-disturbing activities will affect previously undisturbed strata in rock units of high potential (Class 4 or higher), specifically Quaternary Alluvium, Quaternary Sand, Quaternary Nonmarine Sediments, Quaternary Lake Deposits, and Quaternary-Tertiary Lake Deposits, full time monitoring by the Project Paleontologist or other qualified paleontologist will be required.
2. Construction activities shall be diverted when data recovery of significant fossils is warranted, as determined by the Project Paleontologist. Monitoring shall be conducted as follows:
    a. Monitoring of ground disturbance shall consist of the surface collection of visible vertebrate and significant invertebrate fossils within the project site. Upon discovery of paleontological resources by paleontologists or construction personnel, work in the immediate area of the find shall be halted and diverted and the Project Paleontologist shall be notified. Once the find has been inspected and a preliminary assessment has been made, the Project Paleontologist will notify the BLM and the County of Riverside Planning Department of the discovery within 24 hours. If recovery of a large or unusually productive fossil occurrence is warranted, earth-moving activities shall be diverted temporarily around the fossil locality, and a recovery crew shall be mobilized to remove the material as quickly as possible. The monitor shall be permitted to photograph and/or draw stratigraphic profiles of cut surfaces and take samples for analysis of microfossils, dating, or other specified purposes in accordance with the PMMP (MM PAL-2).
    b. Recovered specimens shall be prepared to a point of identification, including washing of sediments to recover smaller fossil remains. Once excavation has reached specified depths, salvage of fossil material from the side

walls of the cut shall resume. Specimens shall be identified and curated into a repository with retrievable storage (MM PAL-7).

c. All significant fossil specimens recovered from the project site as a result of the paleontological monitoring and mitigation program shall be treated (prepared, identified, curated, and cataloged) in accordance with the designated repository requirements. Samples shall be submitted to a laboratory, acceptable to the designated repository, for identification, dating, and microfossil and pollen analysis.

Construction monitoring or spot checking as appropriate, shall also be required for the decommissioning period.

MM PAL-6 **Paleontological Reporting.** The Project Paleontologist shall document the results of the construction monitoring program with daily monitoring reports, monthly progress reports and a final report submitted to BLM, the state regulatory agency, the designated repository and the project proponent as outlined in the PMMP (MM PAL-2). All reports shall be prepared in accordance with BLM, Society of Vertebrate Paleontology guidelines, and state regulatory agency requirements. Reporting shall also be required for the decommissioning period if any new fossils are identified during monitoring of decommissioning activities.

Daily and monthly reporting will include at a minimum a completed BLM locality form 8270-3 or equivalent for each new locality using 1:24000 scale maps with new localities plotted.

Upon completion of all field work, a final report of the monitoring and mitigation conducted must be submitted to the BLM and the County of Riverside Planning Department for review and approval. At a minimum the final report must include the following details as specified by BLM IM 2009-011:

1. Name, affiliation, address, date of report, and permit number (if consultant) of the paleontologist doing the survey.
2. Project name and number (if used), name of proponent, and general location of project.
3. Date(s) of the survey and names of any personnel assisting with the survey.
4. Brief description of project and expected impacts to paleontological resources.
5. A summary of mitigation performed.
6. A summary of findings, including important discoveries.
7. A description of potentially fossiliferous areas to allow for future assessment of sites, even if no fossils were located during the project monitoring.
8. A completed BLM locality form 8270-3 or equivalent for each new locality using Universal Transverse Mercator (UTM) NAD 83 coordinates, and 1:24000 scale maps with new localities plotted using points or polygons as appropriate. Locality forms, maps, and any other information containing specific fossil locations should be bound separately or assembled as a separate section to allow for preservation of confidential locality data.

9. List of specimen field numbers and field identifications of collected material, cross-referenced to the locality field number.

MM PAL-7 **Curation of Paleontological Materials.** Prior to issuing a BLM Notice to Proceed, as specified by BLM Manual 8270-1 the project proponent shall submit written certification from a repository willing to accept the collections and other materials resulting from work done for the project. The project owner shall curate the fossil collections, provide appropriate field and laboratory documentation, and complete the final Paleontological Resource Recovery Report within 90 days from the completion of monitoring. Curation and documentation shall also be required for the decommissioning period if any new fossils are identified during monitoring of decommissioning activities.

MM PAL-8 **Pre-construction Paleontological Subsurface Excavation.** Prior to issuing a BLM Notice to Proceed, the Project Paleontologist shall submit a Pre-construction Subsurface Excavation Plan, prepared consistent with SVP guidelines, for the project to the BLM for review and approval. The Plan shall be prepared and implemented under the direction of the Project Paleontologist. Implementation of the Plan shall be complete prior to the completion of the PMMP so that the resulting information can guide the project mitigation and monitoring strategy. The Plan shall be prepared and implemented at the sole expense of the project proponent, and be consistent with SVP guidelines and meet all BLM and Riverside County regulatory requirements. The subsurface excavation plan is intended to be consistent with SVP guidance for project areas with high paleontological sensitivity and the potential for presence of soil units likely to contain micro-vertebrate fossils (paleosols). Subsurface excavation shall take place in a minimum of 10 locations within the project area, with at least one excavation in each proposed solar field (as applicable), with the remainder placed along the chosen gen-tie line alternative at the discretion of the Project Paleontologist. Trench walls shall be examined and documented by a qualified paleontologist. Small samples from each trench shall be screened through mesh fine enough to collect micro-vertebrate fossils. A minimum of 10 fossils or soil humate samples, as appropriate, shall be collected and shall be subjected to AMS radiocarbon dating. Upon completion of all field work and laboratory analysis, a letter report describing the results of the subsurface excavation must be submitted to the BLM and the County of Riverside Planning Department for review and approval. The results shall be incorporated into the PMMP.

Residual Impacts and Unavoidable Adverse Effects

No residual impacts or unavoidable adverse effects on paleontological resources under Alternative 4 have been identified.

4.7.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would remain in the same location as Alternative 4 and would use the same project boundaries as Alternative 4 except that it would exclude the portion of the site within the Palen-Ford Wildlife Habitat Management Area (WHMA). Alternative 5 would affect the same fossil

locality as Alternative 4, and the disturbed area would be only marginally smaller. In addition, there is a high probability that as-yet-unidentified resources could be affected.

Construction

Direct and Indirect Effects

The effects resulting from constructing Alternative 5 would be the same as those discussed under Alternative 4.

Operation and Maintenance

Direct and Indirect Effects

The effects resulting from the operation and maintenance of Alternative 5 would be the same as those discussed under Alternative 4.

Decommissioning

Direct and Indirect Effects

The effects resulting from the decommissioning of Alternative 5 would be the same as those discussed under Alternative 4.

Mitigation Measures

Mitigation measures MM PAL-1 through MM PAL-8, as described above, would minimize potential adverse project effects to paleontological resources.

Residual Impacts and Unavoidable Adverse Effects

No residual impacts or unavoidable adverse effects on paleontological resources under Alternative 5 would occur.

4.7.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would remain in the same location as Alternative 4 and would use the same project boundaries as Alternative 4 except that it would exclude the southern parcel. This alternative would encompass 1,044 acres. Alternative 6 would affect the same fossil locality as Alternative 4. In addition, there is a high probability that as-yet-unidentified resources could be impacted. However, a reduced footprint would likely reduce the total number of paleontological resources impacted.

Construction

Direct and Indirect Effects

The severity of adverse effects resulting from the construction of Alternative 6 would be the same, but the magnitude of effects would be reduced when compared to those discussed under Alternative 4.

Operation and Maintenance

Direct and Indirect Effects

The severity of adverse effects resulting from the operation and maintenance of Alternative 6 would be the same, but the magnitude of effects would be reduced when compared to those discussed under Alternative 4.

Decommissioning

Direct and Indirect Effects

The severity of adverse effects resulting from decommissioning of Alternative 6 would be the same, but the magnitude of effects would be reduced when compared to those discussed under Alternative 4.

Mitigation Measures

Mitigation measures MM PAL-1 through MM PAL-8, as described above, would minimize potential adverse project effects to paleontological resources.

Residual Impacts and Unavoidable Adverse Effects

No residual impacts or unavoidable adverse effects on paleontological resources under Alternative 6 would occur.

4.7.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 125 to 135 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet. Alternative 7 would affect the same fossil locality as Alternative 4. In addition, there is a high probability that as-yet-unidentified resources could be impacted. However, a reduced footprint would likely reduce the total number of paleontological resources impacted.

Construction

Direct and Indirect Effects

The severity of adverse effects resulting from the construction of Alternative 7 would be the same, but the magnitude of effects would be reduced when compared to those discussed under Alternative 4.

Operation and Maintenance

Direct and Indirect Effects

The severity of adverse effects resulting from the operation and maintenance of Alternative 7 would be the same, but the magnitude of effects would be reduced when compared to those discussed under Alternative 4.

Decommissioning

Direct and Indirect Effects

The severity of adverse effects resulting from decommissioning of Alternative 7 would be the same, but the magnitude of effects would be reduced when compared to those discussed under Alternative 4.

Mitigation Measures

Mitigation measures MM PAL-1 through MM PAL-8, as described above, would minimize potential adverse project effects to paleontological resources.

Residual Impacts and Unavoidable Adverse Effects

No residual impacts or unavoidable adverse effects on paleontological resources under Alternative 7 would occur.

4.7.10 Alternative A – No Gen-Tie

Under Alternative A, the proposed DHSP gen-tie would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site either available or unavailable for future solar energy development. As a result, the DHSP gen-tie would not be constructed. The lack of a gen-tie would prevent the rest of the project from being constructed as well. The BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.7.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Alternative B would exit the southwest portion of the solar facility site, run south along the west side of Kaiser Road, turn east just north of Desert Center, and run south across I-10 to the Red Bluff Substation. The transmission corridor would cover a total length of 12.06 miles with a 160-foot wide corridor plus 450-foot radial stringing areas at each turn. Under this alternative, towers would be shared with the Desert Sunlight Solar Project along the A-1 alignment should that gen-tie line ultimately be constructed; however, the analysis for direct and indirect effects on paleontological resources assumes that complete construction of Alternative B would occur independent of whether the Desert Sunlight gen-tie ultimately is constructed. For combined effects of the two gen-ties, see the cumulative effects analysis in Section 4.7.13. Alternative B would impact at least one previously identified fossil locality consisting of a possible pelvis fragment from a large mammal found in the Quaternary alluvium at the southern end of this gen-tie alternative. The potential for specific components of Alternative B to affect this resource cannot be determined until final engineering and micro-siting is completed. This alternative is underlain by three Class 4-High sensitivity geologic rock units (Pleistocene nonmarine deposits, older Pleistocene nonmarine deposits, Quaternary alluvium). As such, there is a possibility that as-yet-unidentified significant paleontological resources could be located there and, as a result, have the potential to be adversely affected by Alternative B. As stated in Section 3.1, portions of Alternative B have not been surveyed due to site constraints, and additional resources could exist there.

Construction

Direct Effects

The geologic units present at the site have a high potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The physical disturbance of these units during construction of Alternative B has a high potential for direct adverse effects (i.e., to damage or destroy any fossils) for any paleontological resources that might be present along the route.

Mitigation Measure (MM) PAL-1 (Project Paleontological Staff) outlines the qualifications of all individuals conducting paleontological work within the project area; MM PAL-2 (Paleontological Mitigation and Monitoring Plan) outlines the details of how monitoring and mitigation would be conducted for the disturbance of undisturbed strata in rock units of moderate and high sensitivity; MM PAL-3 (Authority to Halt Ground Disturbance) emphasizes the authority of paleontological staff to halt construction equipment if necessary; MM PAL-4 (Paleontological Worker Environmental Awareness Program) would require training of all construction personnel; MM PAL-5 (Construction Monitoring for Paleontological Resources) would require spot-checking and full-time monitoring of undisturbed rock strata of moderate and high sensitivity; MM PAL-6 (Paleontological Reporting) outlines how and when the results of paleontological monitoring and mitigation is reported; MM PAL-7 (Curation of Paleontological Materials) specifies how and when any fossils or related documentation should be stored after it is collected; and MM PAL-8 (Pre-construction Paleontological Subsurface Excavation) outlines field work and laboratory analysis necessary prior to construction in a project area underlain completely by rock strata of high paleontological sensitivity. Together these mitigation measures would minimize the potential for direct impacts from solar facility construction to paleontological resources.

Indirect Effects

The geologic units present at the site have a high potential to contain vertebrate fossils and other scientifically valuable paleontological resources. Indirect adverse effects that may occur during the construction of Alternative B include the potential for increased unauthorized collection of fossils and other paleontological resources resulting from increased numbers of personnel in the vicinity. The potential for indirect impacts on paleontological resources is high. MM PAL-4 (Paleontological Worker Environmental Awareness Program) would require training of all construction personnel and would minimize potential indirect effects from construction of Alternative B.

Operation and Maintenance

Direct Effects

No direct effects to paleontological resources associated with operation and maintenance would occur.

Indirect Effects

The geologic units present along the Alternative B corridor have a high potential to contain vertebrate fossils and other scientifically valuable paleontological resources; however, the density of surface deposits of scientifically significant fossils is expected to be low.

Indirect adverse effects that may occur during operation and maintenance of Alternative B include the potential for increased unauthorized collection of fossils and other paleontological resources by visitors. Visitation is expected to occur in the immediate vicinity of the solar facility and is not expected to occur as a result of the presence of the gen-tie line. The potential for indirect effects from operation and maintenance of Alternative B on paleontological resources is therefore low, and no mitigation is necessary.

Decommissioning

Direct Effects

The physical disturbance of the geologic units present at the site during decommissioning of Alternative B could directly impact (i.e., damage or destroy) any fossils that might be present. Once the gen-tie was removed, no additional direct impacts would be likely. The geologic units present at the site have high potential to contain vertebrate fossils and other scientifically valuable paleontological resources. Therefore, the potential for direct impacts on paleontological resources is high.

Indirect Effects

Indirect effects from decommissioning of Alternative B are identical to those during construction of Alternative B (unauthorized fossil collection by personnel). MM PAL-4 (Paleontological Worker Environmental Awareness Program) would require training of all decommissioning personnel, and would minimize the potential for indirect impacts to fossil resources from Alternative B decommissioning.

Mitigation Measures

Mitigation measures MM PAL-1 through MM PAL-8, as described above, are required to reduce adverse project effects related to paleontology.

Residual Impacts and Unavoidable Adverse Effects

No residual impacts or unavoidable adverse effects on paleontological resources have under Alternative B have been identified.

4.7.12 Alternative C – Separate Transmission Towers within Same ROW

Gen-tie line Alternative C follows the same route as Alternative B; however, instead of sharing towers in this alternative each project has separate transmission towers within the same ROW. Gen-tie line Alternative C towers will be located to the west of DSSP towers. Alternative C would impact at least one previously identified fossil locality consisting of a possible pelvis fragment from a large mammal found in the Quaternary alluvium at the southern end of this gen-tie alternative. The potential for specific components of Alternative B to affect this resource cannot be determined until final engineering and micro-siting is completed. This alternative is underlain by the same geologic units as Alternative B, three Class 4-High sensitivity geologic rock units (Pleistocene nonmarine deposits, older Pleistocene nonmarine deposits, Quaternary alluvium). As such, there is a possibility that as-yet-unidentified significant paleontological resources could be located there and, as a result, have the potential to be adversely affected by

Alternative C. As stated in Section 3.1, portions of Alternative C have not been surveyed due to site constraints, and additional resources could exist there.

Construction

Direct Effects

The direct effects resulting from the construction of Alternative C would be the same as those discussed under Alternative B (physical disturbance of significant fossils).

Indirect Effects

The indirect effects resulting from the construction of Alternative C would be the same as those discussed under Alternative B (unauthorized fossil collection by personnel).

Operation and Maintenance

Direct Effects

No direct effects to paleontological resources associated with operation and maintenance would occur for Alternative C.

Indirect Effects

The indirect effects resulting from the operation and maintenance of Alternative C (fossil collection by visitors) would be the same as those discussed under Alternative B.

Decommissioning

Direct Effects

The direct effects resulting from the decommissioning of Alternative C would be the same as those discussed under Alternative B.

Indirect Effects

The indirect effects resulting from the decommissioning of Alternative C would the same as those discussed under Alternative B.

Mitigation Measures

Mitigation measures MM PAL-1 through MM PAL-8, as described above, would reduce adverse project effects related to paleontology.

Residual Impacts and Unavoidable Adverse Effects

No residual impacts or unavoidable adverse effects on paleontological resources under Alternative C would occur.

4.7.13 Alternative D – Cross-Valley Alignment

Gen-tie line Alternative D (formerly evaluated in the Desert Sunlight Solar Farm Project EIS as DSSP Alternative A-2) would exit the southwest corner of the solar facility site, run for a short distance along the east side of Kaiser Road until it intersects with the right-of-way (ROW) of an

existing SCE transmission line, run to the southeast along the existing transmission ROW, then turn south across I-10 to the Red Bluff Substation. The transmission corridor would cover a total length of 10.45 miles with a 160- foot wide corridor with 450-foot radial stringing areas at each turn. This alternative is underlain by Quaternary alluvium which is a Class 4-High sensitivity geologic formation. No paleontological resources have been identified along this route.

Construction

Direct Effects

The direct effects resulting from the construction of Alternative D would be less than those discussed under Alternative B, as no paleontological resources have been identified at Alternative D. As a result physical disturbance of significant fossils, is less likely. MMs PAL-1 through PAL-8, as described above, would minimize potential effects.

Indirect Effects

The indirect effects resulting from the construction of Alternative D would be less than those discussed under Alternative B (unauthorized fossil collection by personnel), as no paleontological resources have been identified at Alternative D. MM PAL-4, as described above, would minimize potential effects.

Operation and Maintenance

Direct Effects

No direct effects to paleontological resources associated with operation and maintenance Alternative D would occur.

Indirect Effects

The indirect effects resulting from the operation and maintenance of Alternative D would be the same as those discussed under Alternative B (fossil collection by visitors). No mitigation is warranted.

Decommissioning

Direct Effects

The direct effects resulting from the decommissioning of Alternative D would less than those discussed under Alternative B (physical disturbance of significant fossils), as no paleontological resources have been identified at Alternative D. MMs PAL-1 through PAL-8 as described above, would minimize potential effects.

Indirect Effects

The indirect effects resulting from the decommissioning of Alternative D would be less than those discussed under Alternative B (unauthorized fossil collection by personnel), as no paleontological resources have been identified at Alternative D. MM PAL-4 (Paleontological Worker Environmental Awareness Program) would require training of all decommissioning personnel,

and would minimize the potential for indirect impacts to fossil resources from Alternative D decommissioning.

Mitigation Measures

The mitigation measures MM PAL-1 through MM PAL-8, as described above, would reduce adverse project effects related to paleontology.

Residual Impacts and Unavoidable Adverse Effects

No residual impacts or unavoidable adverse effects on paleontological resources have under Alternative D have been identified.

4.7.14 Alternative E – New Cross-Valley Alignment

Gen-tie line Alternative E would exit the southeast corner of the solar farm site, run east across BLM and MWD land, cross Highway 177, intersect with the right-of-way (ROW) of an existing SCE transmission line, then turn south across I-10 to the Red Bluff Substation. The transmission corridor covers a total length of 11.47 miles with a 160- foot wide corridor and 450-foot radial stringing areas at each turn. This alternative is underlain by five geologic units (Quaternary-Tertiary playa deposits, Pleistocene nonmarine deposits, Quaternary lake deposits, Quaternary sand, Quaternary alluvium) assigned Class 4-High sensitivity under the BLM PYFC. A sixth Class-4 High sensitivity unit, Quaternary-Tertiary playa deposits, may be present at depth. Field survey identified five fossil localities in Quaternary lake deposits. The species identified here include: tortoise, rodent, rabbit, and bird.

Construction

Direct Effects

The magnitude of direct effects resulting from the construction of Alternative E would be the same as those discussed under Alternative B and D (physical disturbance of significant fossils), but given the overall higher sensitivity of the underlying geologic formation, the severity of impacts would be somewhat greater than Alternative B and greater than Alternative D. MMs PAL-1 through PAL-8, as described above, would minimize potential effects.

Indirect Effects

The magnitude of indirect effects resulting from the construction of Alternative E would be the same as those discussed under Alternative B and D (unauthorized fossil collection by personnel), but given the overall higher sensitivity of the underlying geologic formation, the severity of impacts would be somewhat greater than Alternative B and greater than Alternative D. MM PAL-4, as described above, would minimize potential effects.

Operation and Maintenance

Direct Effects

No direct impacts to paleontological resources associated with operation and maintenance would occur for Alternative E.

Indirect Effects

The indirect effects resulting from the operation and maintenance of Alternative E would be the same as those discussed under Alternative B (fossil collection by visitors). No mitigation is warranted.

Decommissioning

Direct Effects

The magnitude of direct effects resulting from decommissioning of Alternative E would be the same as those discussed under Alternative B and D (physical disturbance of significant fossils), but given the overall higher sensitivity of the underlying geologic formation, the severity of impacts would be somewhat greater than Alternative B and greater than Alternative D. MMs PAL-1 through PAL-8 would minimize potential effects.

Indirect Effects

The magnitude of indirect effects resulting from decommissioning of Alternative E would be the same as those discussed under Alternative B and D (unauthorized fossil collection by personnel), but given the overall higher sensitivity of the underlying geologic formation, the severity of impacts would be somewhat greater than Alternative B and greater than Alternative D. MM PAL-4 would minimize potential effects.

Mitigation Measures

The mitigation measures MM PAL-1 through MM PAL-8, as described above, would reduce adverse project effects related to paleontology.

Residual Impacts and Unavoidable Adverse Effects

No residual impacts or unavoidable adverse effects on paleontological resources under Alternative E would occur.

4.7.15 Cumulative Effects

This section evaluates the potential for DHSP, and other development projects within the vicinity of DHSP, to have cumulative impacts to paleontological resources. Paleontological effects of multiple ground-disturbing projects have the potential to be cumulatively additive. Individually minor but collectively important actions, usually in the form of ground disturbance, may have a substantial adverse cumulative effect on paleontological resources.

Geographic Scope

The geographic extent for cumulative impacts analysis is limited to the immediate region of the physical disturbance associated with the DHSP and other projects within the I-10 corridor.

Table 4.7-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Paleontology	Within the I-10 corridor between Desert Center and Blythe	Ground disturbance	All projects listed in Table 4.1-1 and 4.1-2

Cumulative Effects Analysis

Paleontologic resources have been documented in the general area of the DHSP, and significant fossils are likely to continue to be unearthed during construction of Alternatives 4 through 7 and C through E plus the other major ongoing and foreseeable solar and energy infrastructure projects along the Interstate-10 corridor (Section 3.16). For the DHSP, MMs PAL-1 through MM PAL-8 and similar monitoring, curation, and reporting measures being required and implemented on other major infrastructure projects would minimize cumulative impacts to paleontological resources. It is anticipated that other foreseeable projects will follow similar procedures. Overall, if significant fossils are uncovered and appropriately documented and curated during construction of these major infrastructure projects, there could be an overall net gain to the science of paleontology by allowing fossils that would not otherwise have been found to be recovered, identified, studied, and preserved.

The No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. Under the cumulative scenario for Alternative B, which considers that the DSSF gen-tie is constructed and the DHSP gen-tie is located on shared poles with no additional ground disturbance, the DHSP gen-tie would result in no net cumulative impacts on paleontological resources in combination with the reasonably foreseeable DSSP gen-tie line. Alternative B would not contribute to cumulative effects.

4.7.16 CEQA Considerations

This section is included in this EIS and CDCA Plan Amendment for future use by CEQA Lead and Responsible agencies and is not required under NEPA.

The principal measure of effect on paleontological resources is the presence or potential presence of these resources in areas where ground disturbance would occur.

CEQA Significance Criteria

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. They are used to determine whether the proposed project or alternatives would result in significant impacts under CEQA related to paleontological resources. The proposed project or alternatives would result in a significant impact related to paleontological resources if they would:

PAL-1 Damage or destroy fossils or other unique paleontological resources;

PAL-2 Directly or indirectly destroy a unique geologic feature associated with paleontological resources; or

PAL-3 Cause the loss of valuable scientific information by disturbing the geology in which fossils are found.

Significant impacts would result from actions where these impacts could not be mitigated by collection prior to and during disturbance or by avoidance.

CEQA Significance Determination

Alternative 1. Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, the proposed solar energy project would not be constructed and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended. It is expected that the site would remain in its existing condition, with no new structures or facilities constructed or operated and no ground disturbance. No significant impacts to paleontological resources would result from Alternative 1. Alternative 1 would not contribute to any significant cumulative impact, as defined in CEQA.

Alternative 2. Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the proposed would not be constructed and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. Any future project would be reviewed under a separate NEPA analysis. No significant impacts to paleontological resources would result from the DHSP. Alternative 2 would not contribute to any significant cumulative impact, as defined in CEQA.

Alternative 3. Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the proposed would not be constructed and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. Any future project would be reviewed under a separate NEPA analysis. No significant impacts to paleontological resources would result from the DHSP. Alternative 2 would not contribute to any significant cumulative impact, as defined in CEQA.

Alternative 4. Under Alternative 4, the Applicant's proposed solar facility, the direct and indirect impacts of project construction, operation, and decommissioning to paleontological resources as described in Section 4.7.5, would be significant under criteria PAL-1 (destruction of unique resources), PAL-2 (destruction of a unique feature), and PAL-3 (loss of scientific information), above.

With implementation of Mitigation Measures MM PAL-1 through MM PAL-8, as described above, these impacts to paleontological resources would be mitigated to less than significant levels under CEQA by: retaining a paleontologist, preparing a paleontological resource management plan, pre-construction monitoring of geotechnical testing, development of a worker environmental awareness program, construction monitoring, recovery and testing of resources, submission of monthly progress reports, sample analysis, preparation of a final report, and the curation of collections and documents.

Under CEQA, there would be no unavoidable significant impacts to these resources.

Alternative 5. Under Alternative 5 the direct and indirect impacts of project construction, operation, and decommissioning, to paleontological resources as described in Section 4.7.6, would be significant under criteria PAL-1 (destruction of unique resources), PAL-2 (destruction of a unique feature), and PAL-3 (loss of scientific information), above.

With implementation of Mitigation Measures MM PAL-1 through MM PAL-8, as described above, these impacts to paleontological resources would be mitigated to less than significant levels under CEQA by: retaining a paleontologist, preparing a paleontological resource management plan, pre-construction monitoring of geotechnical testing, development of a worker environmental awareness program, construction monitoring, recovery and testing of resources, submission of monthly progress reports, sample analysis, preparation of a final report, and the curation of collections and documents.

Under CEQA, there would be no unavoidable significant impacts to these resources.

Alternative 6. Under Alternative 6 the direct and indirect impacts of project construction, operation, and decommissioning, to paleontological resources as described in Section 4.7.7, would be significant under criteria PAL-1 (destruction of unique resources), PAL-2 (destruction of a unique feature), and PAL-3 (loss of scientific information), above.

With implementation of Mitigation Measures MM PAL-1 through MM PAL-8, as described above, these impacts to paleontological resources would be mitigated to less than significant levels under CEQA by: retaining a paleontologist, preparing a paleontological resource management plan, pre-construction monitoring of geotechnical testing, development of a worker environmental awareness program, construction monitoring, recovery and testing of resources, submission of monthly progress reports, sample analysis, preparation of a final report, and the curation of collections and documents.

Under CEQA, there would be no unavoidable significant impacts to these resources.

Alternative 7. Under Alternative 7 the direct and indirect impacts of project construction, operation, and decommissioning, to paleontological resources as described in Section 4.7.7, would be significant under criteria PAL-1 (destruction of unique resources), PAL-2 (destruction of a unique feature), and PAL-3 (loss of scientific information), above.

With implementation of Mitigation Measures MM PAL-1 through MM PAL-8, as described above, these impacts to paleontological resources would be mitigated to less than significant levels under CEQA by: retaining a paleontologist, preparing a paleontological resource management plan, pre-construction monitoring of geotechnical testing, development of a worker environmental awareness program, construction monitoring, recovery and testing of resources, submission of monthly progress reports, sample analysis, preparation of a final report, and the curation of collections and documents.

Under CEQA, there would be no unavoidable significant impacts to these resources.

Alternative A. Under Alternative A, no gen-tie line would be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, the proposed gen-tie line would not be constructed and BLM would continue to manage the ROW consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended (including the Desert Sunlight amendment). It is expected that the Desert Sunlight gen-tie line would be built within the ROW,

and that impacts to vegetation resources would be as described in the Desert Sunlight EIS (BLM 2011). No significant impacts to paleontological resources would result from Alternative A. Alternative A would not contribute to any significant cumulative impact.

Alternative B. Under Alternative B, the direct and indirect impacts of gen-tie line construction, operation, and decommissioning, to paleontological resources, as described in Section 4.7.9, would be significant under PAL-1 (destruction of unique resources), PAL-2 (destruction of a unique feature), and PAL-3 (loss of scientific information), above.

With implementation of Mitigation Measures MM PAL-1 through MM PAL-8, as described above, these impacts to paleontological resources would be mitigated to less than significant levels under CEQA by: retaining a paleontologist, preparing a paleontological resource management plan, pre-construction monitoring of geotechnical testing, development of a worker environmental awareness program, construction monitoring, recovery and testing of resources, submission of monthly progress reports, sample analysis, preparation of a final report, and the curation of collections and documents.

Under CEQA, there would be no unavoidable significant impacts to these resources.

Alternative C. Under Alternative C, the direct and indirect impacts of gen-tie line construction, operation, and decommissioning, to paleontological resources, as described in Section 4.7.10, would be significant under PAL-1 (destruction of unique resources), PAL-2 (destruction of a unique feature), and PAL-3 (loss of scientific information), above.

With implementation of Mitigation Measures MM PAL-1 through MM PAL-8, as described above, these impacts to paleontological resources would be mitigated to less than significant levels under CEQA by: retaining a paleontologist, preparing a paleontological resource management plan, pre-construction monitoring of geotechnical testing, development of a worker environmental awareness program, construction monitoring, recovery and testing of resources, submission of monthly progress reports, sample analysis, preparation of a final report, and the curation of collections and documents.

Under CEQA, there would be no unavoidable significant impacts to these resources.

Alternative D. Under Alternative D, the direct and indirect impacts of gen-tie line construction, operation, and decommissioning, to paleontological resources, as described in Section 4.7.11, would be significant under PAL-1 (destruction of unique resources), PAL-2 (destruction of a unique feature), and PAL-3 (loss of scientific information), above.

With implementation of Mitigation Measures MM PAL-1 through MM PAL-8, as described above, these impacts to paleontological resources would be mitigated to less than significant levels under CEQA by: retaining a paleontologist, preparing a paleontological resource management plan, pre-construction monitoring of geotechnical testing, development of a worker environmental awareness program, construction monitoring, recovery and testing of resources, submission of monthly progress reports, sample analysis, preparation of a final report, and the curation of collections and documents.

Under CEQA, there would be no unavoidable significant impacts to these resources.

Alternative E. Under Alternative E, the direct and indirect impacts of gen-tie line construction, operation, and decommissioning, to paleontological resources, as described in Section 4.7.12,

would be significant under PAL-1 (destruction of unique resources), PAL-2 (destruction of a unique feature), and PAL-3 (loss of scientific information), above.

With implementation of Mitigation Measures MM PAL-1 through MM PAL-8, as described above, these impacts to paleontological resources would be mitigated to less than significant levels under CEQA by: retaining a paleontologist, preparing a paleontological resource management plan, pre-construction monitoring of geotechnical testing, development of a worker environmental awareness program, construction monitoring, recovery and testing of resources, submission of monthly progress reports, sample analysis, preparation of a final report, and the curation of collections and documents.

Under CEQA, there would be no unavoidable significant impacts to these resources.

4.8 FIRE AND FUELS MANAGEMENT

4.8.1 Methodology for Analysis

Baseline conditions for the effects analysis presented in this section were established in Section 3.8. To evaluate effects of the Desert Harvest Solar Project (DHSP) related to fire and fuels management within the project study area, the California Department of Forestry and Fire Protection (CAL FIRE) maps and datasets on statewide Fire Hazard Severity Zones (FHSZ), aerial photographs, and site reconnaissance documenting vegetation conditions were all used to determine wildfire risk in the vicinity of the solar facility site. Published literature on fire behavior and indirect effects on natural resources was reviewed to assess potential indirect effects. The County of Riverside General Plan was reviewed for requirements for emergency response plans, hazard management plans, and wildfire potential.

4.8.2 Applicant Measures

The following Applicant Measures (AMs) have been incorporated as design features of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project. In some cases, mitigation measures further clarify or expand on AM reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures imposed and the following AMs, the mitigation measures take precedence.

AM HAZ-7 **Fire protection measures shall be implemented**. Project facilities will be designed, constructed, and operated in accordance with applicable fire protection and other environmental, health and safety requirements. In compliance with County of Riverside requirements, a project-specific fire prevention plan for both construction and operation of the Solar Farm and Gen-Tie Line will be completed prior to initiation of construction. The fire protection plan will be approved by the BLM and provided to Riverside County for review and comment.

AM HAZ-8 **Fire Prevention Plan.** A project-specific fire prevention plan will be in place during construction, operation and decommissioning of the project. This plan will comply with applicable County of Riverside regulations and would be coordinated with the BLM Fire Management Officer and the local Fire Department in the Chuckwalla Valley at Tamarisk Park.

AM HAZ-9 **Emergency Response Plan.** An emergency response plan and site security plan will be completed for the project facilities by qualified professionals. These plans will be developed in accordance with the BLM requirements.

4.8.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. No solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects caused by project-related wildfires to people and the environment would not occur.

4.8.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and the BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

4.8.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.8.6 Alternative 4 – Proposed Solar Project

Construction

Direct Effects

Alternative 4 would be located in an area of Riverside County that has been determined to have a low to moderate susceptibility to wildfire (Riverside County 2003). Construction of Alternative 4 would increase the potential for a wildfire and could impact the public and environment by exposure to wildfire due to construction activities and ground disturbance. The risk of wildfire would be related to combustion of native plants caused by smoking, refueling, and operating vehicles and other equipment or hazardous materials off paved roadways. A project-related fire could escape initial containment and pose a hazard to life and property for project personnel and nearby landowners. To reduce the risk of wildfire and ensure adequate response to potential wildfires, Mitigation Measures FIRE-1 (a project-specific Fire Prevention Plan), MM PHS-5 (a project-specific Emergency Response and Inventory Plan), and MM PHS-7 (a project-specific fire services agreement with Riverside County and BLM) would be implemented. The full text of MM PHS-5 and MM PHS-7 is in Section 4.13 (Public Health and Safety).

Indirect Effects

Construction of Alternative 4 could introduce non-native plants to the solar facility landscape. Because they dry out earlier in the season and interconnect otherwise patchy native desert plants, non-native plant invasions can result in a landscape's increased susceptibility to wildfire and increased fire frequency beyond what is normal under natural conditions. Construction of Alternative 4 could, therefore, indirectly result in increased fire frequency in the desert environment,

putting nearby residents, structures, personnel, and native habitats at risk of harm from wildfire. To reduce the risk of invasion of non-native plants, and to control any introductions of non-native species on an ongoing basis, Mitigation Measure VEG-9 (an Integrated Weed Management Plan) would be implemented. Alternative 4 could also indirectly increase wildfire spread because restricting access to the solar facility site could impede fire-fighting efforts. To reduce risks related to restricted site access, MM FIRE-1 (a project-specific Fire Prevention Plan), which includes 24-hour site access for fire agencies and a wildfire traffic management plan, would be implemented. However, restricted site access could indirectly decrease the risk of fire ignitions from arson, campfires, and smoking.

Operation and Maintenance

Direct Effects

During operation of Alternative 4, there would be an increased potential for a wildfire that and could impact the public and environment by exposure to wildfire due to ongoing operation and maintenance activities. The risk of wildfire would be related to the combustion of native plants caused by smoking and refueling. No vehicles would be used off road. To reduce the risk of wildfire and ensure adequate response to potential wildfires, Mitigation Measures FIRE-1 (a project-specific Fire Prevention Plan), MM PHS-5 (a project-specific Emergency Response and Inventory Plan), and MM PHS-7 (a project-specific fire services agreement with Riverside County and BLM) would be implemented. The full text of MM PHS-5 and MM PHS-7 is in Section 4.13 (Public Health and Safety).

Indirect Effects

Indirect effects of operating and maintaining Alternative 4 on wildfire would be similar to those described for construction. The effects related to non-native species introduction would be reduced given the smaller workforce and decreased activity level (compared to construction) required for operation and maintenance.

Decommissioning

Direct Effects

During the decommissioning activities of Alternative 4, there would be an increased potential for a wildfire that could impact the public and environment. The risk of wildfire would be related to the combustion of native plants caused by smoking, refueling, and operating vehicles and other equipment off road. To reduce the risk of wildfire and ensure adequate response to potential wildfires, Mitigation Measures FIRE-1 (a project-specific Fire Prevention Plan),MM PHS-5 (a project-specific Emergency Response and Inventory Plan), and MM PHS-7 (a project-specific fire services agreement with Riverside County and BLM) would be implemented. The full text of MM PHS-5 and MM PHS-7 is in Section 4.13 (Public Health and Safety).

Indirect Effects

Indirect effects of operating and maintaining Alternative 4 would be the same as those described for construction.

Mitigation Measures

The following mitigation measure would reduce indirect effects related to wildfire risk.

MM FIRE 1 A project-specific Fire Prevention Plan shall be developed and implemented. This Plan shall comply with applicable County of Riverside regulations and would be coordinated with the BLM Fire Management Officer and the local Fire Department in the Chuckwalla Valley at Tamarisk Park. The Plan shall be developed for construction, operations/maintenance, and decommissioning activities.

The following steps shall be taken to identify and control fires and similar emergencies.

1. **Wildfire traffic control and site access**. The project owner shall develop a wildfire traffic control plan. The plan shall provide mechanisms for keeping roads passable for emergency service providers in a wildfire or other emergency situation. The traffic control plan shall identify strategic locations for adequate construction and maintenance vehicle parking, as necessary, in consultation with BLM. Alternative routes for large equipment and vehicle evacuation shall be identified to the extent possible. The plan shall provide specifications, including GIS data, for a network of access roads to be constructed for adequate fire control and emergency vehicle access to the site. Local fire agencies shall have 24-hour access to the solar farm site. Fire access roads and gates shall be a minimum of 12 feet to allow fire bulldozer access. Firefighting roads shall be maintained to permit access to 2-wheel drive fire equipment. Approved roads shall be named or designated with road signs that shall be maintained in good condition. Project fences shall not limit access to fire roads, fire hydrants, or fire protection systems. The project owner shall provide and maintain a Knox Box or similar system to allow fire and law enforcement, including U.S. Border Patrol, access. Below surface pipelines, electrical and communications lines shall be signed at an interval appropriate to alert firefighting bulldozer and off road fire engine operations to advise firefighters of depth and location.

2. **Minimize fire risk by removing vegetation**. Electrical equipment that is part of the project would only be energized after the necessary inspections and approval to ensure minimal risk of any electrical fire during construction. Measures to minimize fire risk shall include removal of dry vegetation and/or other combustible materials within 30 feet of any hazardous material storage, compressed gas storage, or equipment/vehicle that has the potential to spark a fire. Cleared dead and decaying vegetation shall be removed.

3. **Use of non-flammable coolant for transformers**. Transformers located on site shall be equipped with non-toxic mineral-oil based coolant that is non-flammable, biodegradable and contains no polychlorinated biphenyls or other toxic compounds.

4. **Halt construction during "severe fire weather."** Construction activities shall be halted during "severe fire weather" as defined by the local CAL FIRE office and BLM Fire Management. Work may be resumed during severe fire

weather only with approval of the local CAL FIRE office and BLM Fire Management.

5. **Blasting plan must be approved before any project-related blasting**. No blasting shall occur without submission and approval of a blasting plan. Plan shall be approved by BLM, CAL FIRE, and local fire agency before the start of ground disturbance.

6. **Prevent conflicts with aerial fire-fighting**. All new overhead structures introduced by gen-tie lines shall be mapped and maps and GIS data shall be provided to fire agencies to prevent conflicts with aerial fire-fighting. Construction contractor and project operator shall also coordinate with fire agencies to reduce potential conflicts.

7. **Crew members shall monitor for fire risks and immediately report fires and fire risks**. All construction/maintenance/decommissioning crews and inspectors shall be provided with radio and cellular telephone access that is operational throughout the entire approved solar farm site and gen-tie line route to allow for immediate reporting of fires. Communications equipment shall be tested and confirmed as operational each day prior to initiating construction or maintenance activities. All fires shall be reported to fire agencies, both CAL FIRE and BLM, immediately. Each crew member shall carry at all times a laminated card listed pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts, including appropriate fire suppression measures. Project staff shall monitor fire risks during construction and operation to ensure that prompt measures are taken to mitigate identified risks. The project owner's staff vehicles shall be equipped with fire extinguishers.

In addition to the elements listed above, the Plan shall include the following, at a minimum:

8. The project owner shall provide a dedicated 10,000-gallon water tank, labeled for fire suppression, and maintained for firefighter use. The plumbing connection must be such that the tank can be opened or closed, the plumbing must be permanent, of metal material, and no less than 4 inches. The firefighting connection must be of metal construction and 4-inch National Hose Thread with a separate coupling, that shall be removable, shall be of metal construction from 4-inch National Hose thread to 2 1/2-inch National Hose Thread. A protective cap must be in place to protect the hose threads.

9. No combustible materials, patio furniture, wood picnic tables, sun shades, patio roof shall be stored, placed or constructed around buildings. Such items must be fire resistant.

10. Campfires, barbeques, and stoves must be placed in cleared areas.

11. A notification list shall be provided in the Plan with current contact information for all relevant parties. The notification list shall be updated as changes occur, and available on scene at the Knox Box location.

12. Addresses shall be visible from road, signed with lettering at least 6 inches in height, reflective, and of color contrast to its background.
13. The project owner shall provide a training program for emergency fire responders so that they can safely fight fires without damaging equipment to the extent possible. To this end, the project owner shall provide a single training prop (small panel system) to the Riverside County Fire Department to enhance the training experience.

MM PHS-5 **A project-specific Emergency Response and Inventory Plan shall be prepared** [full text of measure in Section 4.13]

MM PHS-7 **Develop and implement fire services agreement with Riverside County Fire Department and BLM.** [full text of measure in Section 4.13]

MM VEG-9 **Prepare and implement an Integrated Weed Management Plan.** [full text of measure in Section 4.3]

Residual Impacts and Unavoidable Adverse Effects

Implementation of Alternative 4 would not result in unavoidable adverse effects related to fire and fuels management. Effects related to wildfire risk would be mitigated as specified earlier in this section to prevent unavoidable effects.

4.8.7 Alternative 5 – Solar Project Excluding WHMA

Construction

Direct Effects

Because Alternative 5 would require a similar construction workforce and extent of construction operations as Alternative 4, the direct effects of Alternative 5 would be nearly identical to those described for Alternative 4.

Indirect Effects

The indirect effects during construction of Alternative 5 on wildfire would be nearly identical to those described in Alternative 4.

Operation and Maintenance

Direct Effects

Because Alternative 5 would require similar operations and management as Alternative 4, the direct effects of operating and maintaining Alternative 5 would be similar to those described for Alternative 4.

Indirect Effects

The indirect effects of operating and maintaining Alternative 5 would be similar to those described in Alternative 4.

Decommissioning

Direct Effects

Because Alternative 5 would require nearly identical decommissioning operations as Alternative 4, the direct effects of decommissioning Alternative 5 would be similar to those described for Alternative 4.

Indirect Effects

The indirect effects of operating and maintaining Alternative 5 would be similar to those described in Alternative 4.

Mitigation Measures

The same mitigation measures would apply to Alternative 5 as would apply to Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

Implementation of Alternative 5 would not result in unavoidable adverse effects related to fire and fuels management. Effects related to wildfire risk would be mitigated as specified earlier in this section to prevent unavoidable effects.

4.8.8 Alternative 6 – Reduced Footprint Solar Project

Construction

Direct Effects

Because Alternative 6 would require a similar construction workforce and extent of construction operations as Alternative 4, the direct effects of Alternative 6 would be nearly identical to those described for Alternative 4.

Indirect Effects

The indirect effects during construction of Alternative 6 on wildfire would be nearly identical to those described in Alternative 4.

Operation and Maintenance

Direct Effects

Because Alternative 6 would require similar operations and management as Alternative 4, the direct effects of operating and maintaining Alternative 6 would be similar to those described for Alternative 4.

Indirect Effects

The indirect effects of operating and maintaining Alternative 6 would be nearly identical to those described in Alternative 4.

Decommissioning

Direct Effects

Because Alternative 6 would require nearly identical decommissioning operations as Alternative 4, the direct effects of decommissioning Alternative 6 would be nearly identical to those described for Alternative 4.

Indirect Effects

The indirect effects of operating and maintaining Alternative 6 would be similar to those described in Alternative 4.

Mitigation Measures

The same mitigation measures would apply to Alternative 6 as would apply to Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

Implementation of Alternative 6 would not result in unavoidable adverse effects related to fire and fuels management. Effects related to wildfire risk would be mitigated as specified earlier in this section to prevent unavoidable effects.

4.8.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Construction

Direct Effects

Because Alternative 7 would require a similar construction workforce and extent of construction operations as Alternative 4, the direct effects of Alternative 7 would be nearly identical to those described for Alternative 4.

Indirect Effects

The indirect effects during construction of Alternative 7 on wildfire would be nearly identical to those described in Alternative 4.

Operation and Maintenance

Direct Effects

Because Alternative 7 would require similar operations and management as Alternative 4, the direct effects of operating and maintaining Alternative 7 would be similar to those described for Alternative 4.

Indirect Effects

The indirect effects of operating and maintaining Alternative 7 would be nearly identical to those described in Alternative 4.

Decommissioning

Direct Effects

Because Alternative 7 would require nearly identical decommissioning operations as Alternative 4, the direct effects of decommissioning Alternative 7 would be nearly identical to those described for Alternative 4.

Indirect Effects

The indirect effects of operating and maintaining Alternative 7 would be similar to those described in Alternative 4.

Mitigation Measures

The same mitigation measures would apply to Alternative 7 as would apply to Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

Implementation of Alternative 7 would not result in unavoidable adverse effects related to fire and fuels management. Effects related to wildfire risk would be mitigated as specified earlier in this section to prevent unavoidable effects.

4.8.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed and no plan amendment would be issued. If this No Action Alternative were selected, the construction and effects of the gen-tie line would not occur, and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no gen-tie line approved for the site under this alternative, it is expected that proposed tower locations and pull sites would continue to remain in their existing conditions, with no new structures constructed or operated on and no ground disturbance. As a result, effects caused by project-related wildfires to people and the environment would not occur.

4.8.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Construction

Direct Effects

Like Alternatives 4 through 7, Alternative B would be located in an area of Riverside County that has been determined to have a low to moderate susceptibility to wildfire. Direct effects of construction would be similar to those described in Alternative 4. These effects would be reduced because of the smaller workforce, reduced equipment requirements, and smaller area of disturbance. These effects would be reduced by MM PHS-5 (a project-specific Emergency Response and Inventory Plan).

Indirect Effects

Construction of Alternative B could introduce non-native plants to the gen-tie line landscape. The indirect effects of construction of Alternative B would be similar to those described in Alternative 4 but reduced because of the smaller workforce, fewer equipment requirements, and smaller area of disturbance. Because Alternative B would introduce new overhead structures, this alternative could cause potential conflicts with aerial fire-fighting. MM VEG-9 (Integrated Weed Management Plan) would be implemented to reduce effects related to non-native plants.

Operation and Maintenance

Direct Effects

During operation of Alternative B, there would be an increased potential for a wildfire that and could impact the public and environment by exposure to wildfire due to ongoing operation and maintenance activities. The risk of wildfire would be related to the combustion of native plants caused by vehicles, equipment, or hazardous materials. No vehicles would be used off road during operations. These effects would be reduced compared to those described in Alternative 4 given the smaller workforce and area required to operate and maintain Alternative B. Mitigation MM PHS-5 (a project-specific Emergency Response and Inventory Plan) would be implemented to reduce effects.

Indirect Effects

Indirect effects of operating and maintaining Alternative B on wildfire would be similar to those described for construction. These effects would be largely reduced given the smaller workforce and equipment requirements of operation and maintenance.

Decommissioning

Direct Effects

Because of the similarity in workforce and equipment requirements, direct effects of decommissioning Alternative B would be nearly identical to those described for construction.

Indirect Effects

Indirect effects of decommissioning Alternative B would be nearly identical to those described for construction.

Mitigation Measures

The same mitigation measures would apply to Alternative B as apply to Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

Implementation of Alternative B would not result in unavoidable adverse effects related to fire and fuels management. Effects related to wildfire risk would be mitigated as specified earlier in this section to prevent unavoidable effects.

4.8.12 Alternative C – Separate Transmission Towers within Same ROW

Construction

Direct Effects

Because Alternative C would require a similar construction workforce and extent of construction operations as Alternative B, the direct effects of Alternative C would be nearly identical to those described for Alternative B.

Indirect Effects

The indirect effects during construction of Alternative C on wildfire would be nearly identical to those described in Alternative B.

Operation and Maintenance

Direct Effects

Because Alternative C would require identical operations and management as Alternative B, the direct effects of operating and maintaining Alternative C would be identical to those described for Alternative B.

Indirect Effects

The indirect effects of operating and maintaining Alternative C would be identical to those described in Alternative B.

Decommissioning

Direct Effects

Because Alternative C would require nearly identical decommissioning operations as Alternative B, the direct effects of decommissioning Alternative C would be identical to those described for Alternative B.

Indirect Effects

The indirect effects of operating and maintaining Alternative C would be identical to those described in Alternative B.

Mitigation Measures

The same mitigation measures would apply to Alternative C as apply to Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

Implementation of Alternative C would not result in unavoidable adverse effects related to fire and fuels management. Effects related to wildfire risk would be mitigated as specified earlier in this section to prevent unavoidable effects.

4.8.13 Alternative D – Cross-Valley Alignment

Construction

Direct Effects

Because Alternative D would require a similar construction workforce and extent of construction operations as Alternative B, the direct effects of Alternative D would be nearly identical to those described for Alternative B.

Indirect Effects

The indirect effects during construction of Alternative D on wildfire would be nearly identical to those described in Alternative B. However, this alternative would not have the same indirect effects related to introducing new overhead structures.

Operation and Maintenance

Direct Effects

Because Alternative D would require identical operations and management as Alternative B, the direct effects of operating and maintaining Alternative D would be identical to those described for Alternative B.

Indirect Effects

The indirect effects of operating and maintaining Alternative D would be identical to those described in Alternative B.

Decommissioning

Direct Effects

Because Alternative D would require nearly identical decommissioning operations as Alternative B, the direct effects of decommissioning Alternative D would be identical to those described for Alternative B.

Indirect Effects

The indirect effects of operating and maintaining Alternative D would be identical to those described in Alternative B.

Mitigation Measures

The same mitigation measures would apply to Alternative D as apply to Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

Implementation of Alternative D would not result in unavoidable adverse effects related to fire and fuels management. Effects related to wildfire risk would be mitigated as specified earlier in this section to prevent unavoidable effects.

4.8.14 Alternative E – New Cross-Valley Alignment

Construction

Direct Effects

Because Alternative E would require a similar construction workforce and extent of construction operations as Alternative B, the direct effects of Alternative E would be nearly identical to those described for Alternative B.

Indirect Effects

The indirect effects during construction of Alternative E on wildfire would be nearly identical to those described in Alternative B.

Operation and Maintenance

Direct Effects

Because Alternative E would require identical operations and management as Alternative B, the direct effects of operating and maintaining Alternative E would be identical to those described for Alternative B.

Indirect Effects

The indirect effects of operating and maintaining Alternative E would be identical to those described in Alternative B.

Decommissioning

Direct Effects

Because Alternative E would require nearly identical decommissioning operations as Alternative B, the direct effects of decommissioning Alternative E would be identical to those described for Alternative B.

Indirect Effects

The indirect effects of operating and maintaining Alternative E would be identical to those described in Alternative B.

Mitigation Measures

The same mitigation measures would apply to Alternative E as apply to Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

Implementation of Alternative E would not result in unavoidable adverse effects related to fire and fuels management. Effects related to wildfire risk would be mitigated as specified earlier in this section to prevent unavoidable effects.

4.8.15 Cumulative Effects

Geographic Scope

The geographic area considered for cumulative effects on fire and fuels management is within the I-10 corridor from Indio to Blythe, California for emergency response purposes and within a one-mile radius of the proposed project and alternatives. A cumulative fire effect would occur if multiple projects were to increase the frequency of fires in the same location or if the fires could potentially spread to the same areas. The existing and reasonably foreseeable projects listed in Tables 4.1-1 and 4.1-2 (see Section 4.1.4, Introduction, Cumulative Scenario Approach) could combine to create cumulative effects to emergency response. The projects listed below in Table 4.8-1 could combine with the DHSP to create cumulative effects to fire risk.

Table 4.8-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Fire and Fuels Management	Within the I-10 corridor from Indio to Blythe, California for emergency response and within 1 mile of the proposed project for fire risk	Increase in fire ignitions, impacts to worker safety, emergency response, and fire protection	All projects listed in Table 4.1-1 and 4.1-2 for emergency response. The following projects for fire risk: • Desert Sunlight Solar Farm • Chuckwalla Valley Raceway • DPV1 Transmission Line • Blythe Energy Project Transmission Line • I-10 • Silverado Power Solar Project • SCE Red Bluff Substation • Desert Center 50 (for Alternative E) • Sol Orchard • DPV No.2 Transmission Line

Most of these projects have either undergone independent environmental review pursuant to NEPA and/or CEQA or will do so prior to approval. Even if environmental review has not been completed for the cumulative projects described, their effects were considered in the cumulative effects analyses in this EIS.

The temporal scope of this cumulative analysis is considered the duration of construction, operation, and decommissioning of the proposed project or an alternative. This is because the construction, operation and maintenance, and decommissioning of the DHSP would could result in wildfire ignitions and impact emergency response time throughout the life of the project.

Cumulative Effects Analysis

The Desert Sunlight Solar Farm (DSSF) project and Interstate 10 are located within the cumulative study area for fire and fuels management, as are several other proposed renewable energy projects. The proposed project is scheduled to be under construction concurrently with the DSSF, and could overlap with other proposed projects pending their approval. Interstate 10 is an existing project. Construction and operation of the DSSF could result in wildfire ignitions due to the use of heavy equipment, smoking, or welding. Transmission lines may also cause wildfire ignitions if maintenance is not properly conducted, if a low-flying plane or helicopter were to crash into the line, or sometimes as a result of wildlife collisions. Ignitions from Interstate 10 could originate from drivers throwing cigarette butts out car windows.

Fire ignitions from Alternative 4 could combine with ignitions from the DSSF and from drivers on Interstate 10 to increase the frequency of fires above the baseline fire frequency. The combination of these projects being constructed concurrently could substantially increase the frequency of fire in the area above natural conditions. Worker safety, emergency response, and fire protection could all be affected if simultaneous emergency response to multiple locations is required. Although the chances that two or more alternative energy facilities would require emergency response simultaneously may be low, a response to one distant site could impede or preclude a simultaneous response to another facility, residential or commercial location, or other location in demand.

In light of the similarities in their components and construction requirements, the fire and fuels management cumulative impacts for Alternatives 5, 6, and 7 would be essentially the same as described for Alternative 4 and would not be cumulatively considerable. Alternatives C through E would be largely the same as one another, and an overall cumulative increase in fire frequency could be substantial in the Chuckwalla Valley as a result of large-scale development of an open-space desert area. With implementation of MM FIRE-1 (a project-specific Fire Prevention Plan), which would ensure personnel are trained in emergency firefighting techniques, and that fire-protection equipment is available at the DHSP project site, the incremental increase in wildfire frequency and demands on emergency services of Alternatives C through E would be minimal. With mitigation measures required for Alternatives C through E, the contribution of these alternatives to this cumulative effect would be minimized, and similarly, the extensive fire-safe mitigation measures required for the DSSF project and any approved solar project would minimize fire ignitions from these sources.

There would be no cumulative fire and fuels management impacts under the No Action Alternatives 1, 2, 3, and A because there would be no ROW grant for development of the project and associated facilities. There would also be no cumulative fire and fuel management impacts under Alternative B, because the DHSP gen-tie line would be located on shared poles of the reasonably foreseeable DSSF. The incremental effects of the DHSP gen-tie under alternative B would be negligible when combined with those of the DSSP gen-tie.

4.8.16 CEQA Considerations

This section is included in this EIS for future use by CEQA Lead and Responsible agencies, and is not required under NEPA.

CEQA Significance Criteria

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. They are used to determine whether the proposed project or alternatives would result in significant impacts under CEQA related to fire and fuels management. The proposed project and alternatives would result in a significant impact related to fire and fuels management if they would:

Fire-1 Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

CEQA Significance Determination

Alternative 1. Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, impacts caused by project-related wildfires to people and the environment would not occur.

Alternative 2. Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

Alternative 3. Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

Alternative 4. During construction, operation and maintenance, and decommissioning of Alternative 4, risk of wildfires would be increased by combustion of native materials, smoking, and refueling and operating vehicles and other equipment and hazardous materials off road (CEQA significance criterion Fire-1). MM FIRE-1 (a project-specific Fire Prevention Plan) establishes standards and practices that would minimize the risk of a wildfire and, in the event of fire, provide for immediate suppression and notification. MM PHS-5 (a project-specific Emergency Response and Inventory Plan) and MM PHS-7 (a project-specific fire services agreement with Riverside County and BLM) provide additional requirements related to emergency response. Alternative 4 could also indirectly increase wildfire risks by restricting access to the project site. To reduce risks related to restricted site access, MM FIRE-1 (a project-specific Fire Prevention Plan), which includes 24-hour site access for fire agencies and a wildfire traffic management plan, would be implemented.

Construction, operation, and decommissioning could also introduce non-native plants to the proposed project landscape. As described in Section 4.8.6, above, certain non-native plants tend to increase a landscape's susceptibility to wildfire, and non-native plant invasions can result in increased fire frequency beyond what is normal under native conditions, putting nearby residents, structures, personnel, and native habitats at risk of harm from wildfire and resulting in a significant impact. To reduce the risk of invasion of non-native plants, and to control any introductions of non-native species on an ongoing basis, Mitigation Measure VEG-9 (Integrated Weed Management Plan) would be implemented. Therefore, with implementation of MM VEG-9, project construction, operation, and maintenance would not expose people or structures to a significant risk of injury or loss as a result of wildfire. With the implementation of these mitigation measures, potential impacts from wildfire would be less than significant.

As described in Section 4.8.15, the effects of surrounding projects on emergency response to fire could be cumulatively substantial. The likelihood of simultaneous fires at more than one project site is low, but such a circumstance could strain local emergency response capacity. With implementation of mitigation measures to minimize weed introduction and ignition sources and to ensure personnel are trained in emergency response as described in Mitigation Measures FIRE-1 (a project-specific Fire Prevention Plan), MM PHS-5 (a project-specific Emergency Response and Inventory Plan), MM PHS-7 (a project-specific fire services agreement with Riverside County and BLM), and MM VEG-9 (Integrated Weed Management Plan), the contribution of Alternative 4 to an increase in regional fire risk would not be cumulatively considerable.

Alternative 5. As described in Section 4.8.7 of this EIS, potential fire-related effects of Alternative 5 would be largely the same as under Alternative 4; as such, potential impacts to fire and fuels management during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative 4.

Alternative 6. As described in Section 4.8.8 of this EIS, potential fire-related effects of Alternative 6 would be largely the same as under Alternative 4; as such, potential impacts to fire and fuels management during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative 4.

Alternative 7. As described in Section 4.8.8 of this EIS, potential fire-related effects of Alternative 7 would be largely the same as under Alternative 4; as such, potential impacts to fire and fuels management during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative 4.

Alternative A. Under Alternative A, no gen-tie line would be constructed and no plan amendment would be issued. If this No Action Alternative were selected, the construction and impacts of the gen-tie line would not occur, and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no gen-tie line approved for the site under this alternative, it is expected that proposed tower locations and pull sites would continue to remain in their existing conditions, with no new structures constructed or operated on and no ground disturbance. As a result, impacts caused by project-related wildfires to people and the environment would not occur.

Alternative B. Like Alternatives 4 through 7, Alternative B would be located in an area of Riverside County that has been determined to have a low to moderate susceptibility to wildfire. Direct effects of construction would be similar to those described in Alternative 4. These effects would be reduced because of the smaller workforce, reduced equipment requirements, and smaller area of disturbance. These effects would be reduced by MM FIRE-1 (a project-specific Fire Prevention Plan),MM PHS-5 (a project-specific Emergency Response and Inventory Plan) and MM PHS-7 (a project-specific fire services agreement with Riverside County and BLM).

Construction of Alternative B could introduce non-native plants to the project landscape. The indirect effects of construction of Alternative B would be similar to those described in Alternative 4 but reduced because of the smaller workforce, fewer equipment requirements, and smaller area of disturbance. Because Alternative B would introduce new overhead structures, this alternative could cause potential conflicts with aerial fire-fighting. To prevent these conflicts, MM

FIRE-1 requires coordinating with and providing gen-tie line maps to local fire agencies. MM VEG-9 (Integrated Weed Management Plan) would be implemented to reduce impacts related to non-native plants. With the implementation of these measures, impacts related to wildfire would be less than significant.

Alternative B would not contribute to cumulative effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Alternative C. As described in Section 4.8.12 of this EIS, potential fire-related effects of Alternative C would be largely the same as under Alternative B; as such, potential impacts to fire and fuels management during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative B.

Cumulative impacts of Alternative C and surrounding projects would be similar to those described in Alternative 4, but reduced given Alternative C's smaller scale and workforce requirements.

Alternative D. As described in Section 4.8.13 of this EIS, potential fire-related effects of Alternative D would be largely the same as under Alternative B; as such, potential impacts to fire and fuels management during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative B.

Cumulative impacts of Alternative D and surrounding projects would be similar to those described for Alternative C.

Alternative E. As described in Section 4.8.14 of this EIS, potential fire-related effects of Alternative D would be largely the same as under Alternative B; as such, potential impacts to fire and fuels management during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative B.

Cumulative impacts of Alternative E and surrounding projects would be similar to those described for Alternative C.

4.9 SOILS AND GEOLOGY

4.9.1 Methodology for Analysis

This section describes the geologic hazards effects and effects on soil resources that would occur with the implementation of the proposed project or alternatives. The analysis evaluates the effect of construction, operation and maintenance, and decommissioning.

The potential effects related to geologic hazards were evaluated by assessing if there would be life/safety concerns or effects to proper function of the Desert Harvest Solar Project (DHSP) as a result of a seismic event. The potential impact associated with loss of soils due to erosion by either water or wind was also evaluated. This analysis is based on publicly available resources including journal articles and databases related to seismic hazards; technical reports prepared by the Applicant; and soil data from the National Resources Conservation Service (NRCS). This information was reviewed within the context of applicable federal, state and local regulations.

Table 4.9-1 provides an overview of acreages of temporary and permanent disturbance related to the proposed project and alternatives. The potential for seismic hazards remains unchanged by any of the alternatives proposed.

Table 4.9-1. Comparison of Action Alternative Features Relevant to Soil Resources

	Solar Site Alternatives				Gen-Tie Line Alternatives			
	Alt 4	Alt 5	Alt 6	Alt 7	Alt B	Alt C	Alt D	Alt E
Total ROW	—	—	—	—	256	256	226	213
Temporary Access Roads	—	—	—	—	0	22.2	18.2	17.4
Permanent Disturbance	1,208	1,161	1,044	1,044	0	92	86	77

4.9.2 Applicant Measures

The following Applicant Measures (AMs) have been incorporated as design features of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project. In some cases, mitigation measures further clarify or expand on AM reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures imposed and the following AMs, the mitigation measures take precedence.

AM GEO-1 **Design Plan.** Project structures shall be built in accordance with the design-basis recommendations in the project-specific geotechnical investigation report. Structure designs must meet the requirements of all applicable federal, state, and county permits and building codes.

AM GEO-2 **Design Features.** The Applicant will implement the following design features to reduce effects from wind and water erosion to soils:

- Obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction Activity (General Permit) Water Quality Order 2009-0009 DWQ;

- Use nonhazardous dust suppressants approved by the BLM and water on an as-needed basis to suppress wind-blown dust generated at the site during construction. Dust palliatives also would be applied between rows of solar panels for dust suppression during operation;
- Implement erosion control measures during construction; and
- Use silt fences for erosion control in the event of a storm event along neighboring properties and along the main drainage adjacent to the solar facility site.

4.9.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the DHSP would not be approved by the BLM, and BLM would not amend the CDCA Land Use Plan of 1980, as amended (CDCA Plan). As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects from the project would not occur.

4.9.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Plan. It is possible that, as a result of the CDCA Plan amendment, that in the future another solar energy generation project could be proposed with impacts similar to the DHSP, however, such impacts are speculative at this time, and no effects from the Proposed Action would occur.

4.9.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.9.6 Alternative 4 – Proposed Solar Project

Construction

Direct Effects

Construction of Alternative 4 would require clearance of 1,208 acres of lands with the project study area. Development of the solar facility site is described in Section 2.4 (Alternative 4). In

addition to the solar array and internal roads, other permanent land uses include the O&M facility and on-site substation. The site would be graded to clear and grub plants, followed by minimal cut and fill depths, averaging about 5 inches. No import material would be used. The site would then be compacted to allow vehicle access and equipment installation.

Water and Wind Erosion of Soils. As stated in Section 3.9, relict, old, or inactive dune deposits exist scattered throughout the project study area. Because of limited sand sources, the potential for wind-driven sand erosion of Alternative 4 is low (BLM 2011). Disturbance to existing cryptobiotic soil crusts and/or desert pavement on the solar facility site could result in a substantial increase in on-site wind- and waterborne soil erosion. However, these potential impacts will be addressed by a combination of project design features and mitigation measures. MM AIR-1 (Fugitive Dust Control Plan) would increase soil stabilization and minimize wind erosion/fugitive dust by requiring dust control measures such as paving the main access road, stabilizing unpaved roads, watering graded material, discontinuing construction during windy conditions, limiting traffic speeds, and regulating haul materials (see Section 4.2.6 in Air Quality for full MM). To ensure that dust suppression efforts would not increase offsite erosion, AM GEO-2 (design features) identifies BMPs, such as erosion control and use of dust suppressants, that would be used to ensure that water used for dust suppression would be contained within the construction area. This measure would be supplemented by MM WAT-1 (demonstrate compliance with water quality permits) and MM WAT-4 (drainage design specifications). With the implementation of these measures, there would be no unavoidable adverse effects related to potential soil erosion associated with the construction of Alternative 4.

Indirect Effects

Seismic and Geologic Hazards. Alternative 4 is approximately 10 miles from the Blue Cut fault system and 29 miles from the Pinto Mountain fault zone. During construction, regional seismic hazards could expose site workers to seismic hazards, including being struck by project infrastructure that may move as a result of seismic shaking or by being present in an unstable indoor area; however, seismic events are infrequent and would not be highly likely to occur during the construction phase. Implementation of design characteristics that comply with the 2010 California Building Code (CBC) would reduce seismic effects by ensuring that occupied buildings are constructed safely to withstand seismic shaking. In addition, implementation of MM PHS-5 (Emergency Response Plan) would ensure that emergency response is organized and coordinated at the solar facility site during construction, including in the event of a seismic or geologic hazard.

Other geologic hazards, including liquefaction, seismically induced subsidence, tsunamis, seiches and slope instability are not applicable to the construction of Alternative 4. Though groundwater levels at the solar facility site may fluctuate with precipitation, irrigation, drainage, and regional pumping from wells, groundwater is estimated to be greater than 50 feet below ground surface based on levels recorded in wells found in the area. As a result, soil susceptibility to liquefaction during a seismic event is not considered likely. Section 4.20, Water Resources, has a comprehensive analysis of groundwater effects associated with the project. As stated in Section 3.9, the project study area is within a Riverside County-designated “susceptible” subsidence zone (Riverside County 2003). Compaction of soils during construction would prevent subsidence of soils at the solar facility during a seismic event. AM GEO-1 requires the project owner to include, as part of the construction design plans for the project, any additional mitigation

measures indicated by the upcoming geotechnical survey related to final engineering design of project elements. The DHSP area is neither coastal nor near any large body of water; therefore, it would not be subject to tsunami or seiche.

Sand Transport. There are no sand dunes within the solar facility site, although there are dunes in the vicinity. Because there are no sand dunes on site, Alternative 4 would not interfere with Aeolian sand transport. Fluvial (water-borne) sand transport would also be unaffected by construction of Alternative 4, as the construction of solar panels would not impede downslope water flow through the site.

Operation and Maintenance

Direct Effects

Water and Wind Erosion of Soils. During operation and maintenance, the potential soil erosion effects from water and wind would be minimal. Implementing AM GEO-2 (design features, described in Section 4.9.2 above)) at a frequency detailed in a future operations and maintenance plan as approved by the BLM would reduce any potential effects from water and wind erosion. This measure would be supplemented by MM AIR-3 (control fugitive dust from unpaved roads during operation), which would increase soil stabilization and minimize wind erosion/fugitive dust. MM WAT-1 would ensure the project owner complies with water quality permits and minimizes any water-related soil erosion on the project site during construction.

Indirect Effects

Seismic and Geologic Hazards. The operation and maintenance of Alternative 4 would expose people and/or structures to the same seismic hazards as described for construction. However, the implementation of an Emergency Response and Inventory Plan (MM PHS-5) would minimize these potential effects.

Sand Transport. The operation and maintenance of the project would not interfere with Aeolian sand transport or with water-borne sand transport.

Decommissioning

Direct Effects

Water and Wind Erosion of Soils. During decommissioning of Alternative 4, the potential soil erosion effects from water and wind would be expected to be similar to those described for construction as similar types of equipment and activities would be required. Implementing AM GEO-2 (Design Features) as detailed in an operations and maintenance plan as approved by the BLM would reduce any potential effects from water and wind erosion. This measure would be supplemented by MM AIR-1 (Fugitive Dust Control Plan), which would increase soil stabilization and minimize wind erosion/fugitive dust. MM WAT-1 would ensure the project owner complies with water quality permits and minimizes any water-related soil erosion.

Indirect Effects

Seismic and Geologic Hazards. The decommissioning of Alternative 4 would have similar effects as construction. Facilities would be removed and land reclaimed. Decommissioning of Alternative 4 would expose people and/or structures to the same effects as during construction.

Implementing MM PHS-5 would minimize these potential effects. After decommissioning, facilities would be removed and land reclaimed, bringing an end to seismic related risk from this alternative.

Sand Transport. Decommissioning Alternative 4 would not interfere with Aeolian sand transport or with water-borne sand transport.

Mitigation Measures

In addition to the Applicant Measures identified above, the following mitigation measures are required for Alternative 4.

MM AIR-1 **The project owner shall develop a Fugitive Dust Control Plan in compliance with SCAQMD Rule 403 to reduce PM10 and PM2.5 emissions during construction** (full text in Section 4.2 [Air Resources])

MM AIR-3 **The project owner shall control fugitive dust from the unpaved roads on the site during operation** (full text in Section 4.2 [Air Resources])

MM WAT-1 **Demonstrate compliance with water quality permits** (full text in Section 4.20 [Water Resources])

MM WAT-4 **Stormwater Pollution Prevention Plan and Drainage Design Specifications**. (full text in Section 4.20 [Water Resources])

MM PHS -5 **A project-specific Emergency Response and Inventory Plan shall be prepared** (full text in Section 4.13 [Public Health and Safety])

Residual Impacts and Unavoidable Adverse Effects

With the implementation of mitigation, the construction, operation and maintenance, and decommissioning of Alternative 4 would not result in any unavoidable adverse effects.

4.9.7 Alternative 5 – Solar Project Excluding WHMA

Construction

Although Alternative 5 covers a slightly smaller area than Alternative 4, the direct and indirect effects on soil and geological resources of Alternative 5's construction will be the same as those described for Alternative 4.

Operation and Maintenance

Operation and maintenance of Alternative 5 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

Decommissioning

Decommissioning of Alternative 5 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

Mitigation Measures

The same mitigation measures would apply to Alternative 5 as apply to Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

With the implementation of mitigation, the construction, operation and maintenance, and decommissioning of Alternative 5 would not result in any unavoidable adverse effects.

4.9.8 Alternative 6 – Reduced Footprint Solar Project

Construction

Although Alternative 6 covers a slightly smaller footprint and would revise the solar panel layouts compared with Alternative 4, the direct and indirect effects on soil and geological resources of Alternative 6's construction will be the same as those described for Alternative 4.

Operation and Maintenance

Operation and maintenance of Alternative 6 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

Decommissioning

Decommissioning of Alternative 6 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

Mitigation Measures

The same mitigation measures would apply to Alternative 6 as would apply to Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

With the implementation of mitigation, the construction, operation and maintenance, and decommissioning of Alternative 6 would not result in any unavoidable adverse effects.

4.9.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Construction

Although Alternative 7 covers a slightly smaller footprint and would increase the solar panel height compared with Alternative 4, the direct and indirect effects on soil and geological resources of Alternative 7's construction will be the same as those described for Alternative 4.

Operation and Maintenance

Operation and maintenance of Alternative 7 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

Decommissioning

Decommissioning of Alternative 7 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

Mitigation Measures

The same mitigation measures would apply to Alternative 7 as would apply to Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

With the implementation of mitigation, the construction, operation and maintenance, and decommissioning of Alternative 7 would not result in any unavoidable adverse effects.

4.9.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed and no plan amendment would be issued. If this No Action Alternative were selected, the construction and effects of the gen-tie line would not occur, and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan. Because there would be no amendment to the CDCA Plan and no gen-tie line approved for the site under this alternative, it is expected that proposed tower locations and pull sites would continue to remain in their existing conditions, with no new structures constructed or operated on and no ground disturbance. As a result, effects caused to soils and geology and the seismic risks related to the gen-tie would not occur.

4.9.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Construction

Alternative B would share transmission infrastructure with the approved Desert Sunlight Solar Farm (DSSF) project; however, the baseline for environmental effects is the existing condition of the site in September 2011. At this time, construction of the DSSF transmission infrastructure had not yet commenced, so analysis of Alternative B must include all construction effects of this shared infrastructure.

Construction of Alternative B within the 12.1-mile by 160-foot-wide transmission corridor, plus additional fan-shaped areas at corners, would result in the permanent disturbance of 92 acres along the route, as described in Section 2.8 (Alternative B).

Direct Effects

Wind and Water Erosion of Soils. Construction of Alternative B would require clearance of an estimated 92 acres. Permanent land use would include tower foundations and permanent access roads. Permanent roads, temporary areas around each pole location, puller and tensioner sites, and wire setup sites would be graded and cleared. As with construction of Alternative 4, grading could result in a substantial increase in on-site wind- and waterborne soil erosion. These effects would be minimized by AM GEO-2 and MM AIR-1, which institute specific dust control measures such as use of dust suppressants, erosion control, and development of a fugitive dust control plan.

Indirect Effects

Seismic and Geologic Hazards. Alternative B is approximately 10 miles from the Blue Cut fault system and 29 miles from the Pinto Mountain fault zone. During construction, regional seismic hazards could expose site workers to seismic hazards, including being struck by project infrastructure that may move as a result of seismic shaking or by being present in an unstable

indoor area; however, seismic events are infrequent and would not be highly likely to occur during the construction phase. Other geologic hazards, including liquefaction, seismically induced subsidence, tsunamis, seiches and slope instability are not applicable to the construction of Alternative B (see Section 4.9.6). AM GEO-1 requires the project owner to include, as part of the construction design plans for the solar project, any mitigation measures provided by the upcoming geotechnical survey which would include appropriate engineering design elements. In addition, implementation of MM PHS-5 (Emergency Response Plan) would ensure that emergency response is organized and coordinated at the Alternative B site during construction, including in the event of a seismic or geologic hazard.

Sand Transport. The construction of Alternative B would not affect Aeolian or water-borne sand transport.

Operation and Maintenance

Direct Effects

Wind and Water Erosion of Soils. During operation and maintenance, the potential soil erosion effects would be minimal.

Indirect Effects

Seismic and Geologic Hazards. Operating and maintaining this transmission corridor would expose people and/or structures to the same seismic hazards as described for construction; however, the exposure of workers to seismic hazards would be reduced due to the limited amount of operations and maintenance expected. These effects would be minimized by the AM GEO-1 which requires a design plan that incorporates recommendations from a geotechnical survey and implementation of an Emergency Response and Inventory Plan (MM PHS-5).

Sand Transport. Alternative B is not located within the sand transport corridor.

Decommissioning

Direct Effects

Wind and Water Erosion of Soils. During decommissioning of Alternative B, the potential soil erosion effects would be minimal, and would be expected to be similar to those identified for construction. To the extent they occur, these effects would be minimized by AM GEO-2 and the other mitigation measures identified for Alternative 4.

Indirect Effects

Seismic and Geologic Hazards. Decommissioning of Alternative B would expose people and/or structures to the same effects as during construction. These effects would be minimized by the mitigation proposed for construction. After decommissioning, facilities would be removed and land reclaimed, bringing an end to seismic related risk from this alternative.

Sand Transport. Alternative B is not located within the sand transport corridor.

Mitigation Measures

The same mitigation measures would apply to Alternative B as would apply to Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

With the implementation of mitigation, the construction, operation and maintenance, and decommissioning of Alternative B would not result in any unavoidable adverse effects.

4.9.12 Alternative C – Separate Transmission Towers within Same ROW

Construction

Construction of Alternative C within the 12.1-mile by 160-foot-wide transmission corridor, plus additional fan-shaped areas at corners, would result in the permanent disturbance of 92 acres along the route, as described in Section 2.9 (Alternative C).

Because they occur in the same ROW and follow parallel paths, the effects of constructing Alternative C on seismic and geologic hazards as well as on erosion and sand transport would be the same as those discussed for Alternative B.

Operation and Maintenance

Because they occur in the same ROW and follow parallel paths, the effects of operation and maintenance of Alternative C on seismic and geologic hazards as well as on erosion and sand transport would be the same as those discussed for Alternative B.

Decommissioning

Because they occur in the same ROW and follow parallel paths, the effects of decommissioning Alternative C on seismic and geologic hazards as well as on erosion and sand transport would be the same as those discussed for Alternative B.

Mitigation Measures

The same mitigation measures would apply to Alternative C as would apply to Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

With the implementation of mitigation, the construction, operation and maintenance, and decommissioning of Alternative C would not result in any unavoidable adverse effects.

4.9.13 Alternative D – Cross-Valley Alignment

Construction

Construction of Alternative D within the 10.5-mile by 160-foot-wide transmission corridor, plus additional fan-shaped areas at corners, would result in permanent disturbance of 86 acres along the route, as described in Section 2.10 (Alternative D).

Alternative D would disturb a similar area of land area and occur in a nearly identical geological setting as Alternative B. Therefore, the effects of construction of Alternative D on seismic and geologic hazards as well as on erosion and sand transport would be nearly identical to those discussed for Alternative B.

Operation and Maintenance

Alternative D would disturb a similar area of land area and occur in a nearly identical geological setting as Alternative B. Therefore, the effects of operating and maintaining Alternative D on seismic and geologic hazards as well as on erosion and sand transport would be nearly identical to those discussed for Alternative B.

Decommissioning

Alternative D would disturb a similar area of land area and occur in a nearly identical geological setting as Alternative B. Therefore, the effects of decommissioning Alternative D on seismic and geologic hazards as well as on erosion and sand transport would be nearly identical to those discussed for Alternative B.

Mitigation Measures

The same mitigation measures would apply to Alternative D as would apply to Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

With the implementation of mitigation, the construction, operation and maintenance, and decommissioning of Alternative D would not result in any unavoidable adverse effects.

4.9.14 Alternative E – New Cross-Valley Alignment

Construction

Construction of Alternative E within the 11.5-mile by 160-foot-wide transmission corridor, plus additional fan-shaped areas at corners, would result in permanent disturbance of 77 acres along the route, as described in Section 2.11 (Alternative E).

Alternative E would disturb a similar area of land area and occur in a nearly identical geological setting as Alternative B. Therefore, the effects of construction of Alternative E on seismic and geologic hazards as well as on erosion would be nearly identical to those discussed for Alternative B. However, Alternative E would traverse a sand-transport corridor along an approximately 1-mile segment, and construction within the sand-transport area would partially interfere with Aeolian sand transport in the area; over time, sand would pass around the transmission poles and would blow over access roads, resulting in a minimal long-term effect. This effect would be temporary and not substantially adverse given the overall magnitude of the disturbance.

Operation and Maintenance

Alternative E would disturb a similar area of land area and occur in a nearly identical geological setting as Alternative B, with the only difference that Alternative E would traverse an approximately 1-mile segment of a sand-transport corridor. Therefore, the effects of operating and maintaining Alternative E on seismic and geologic hazards as well as on erosion would be nearly identical to those discussed for Alternative B. However, the existence of several transmission poles and access roads within the sand-transport area would partially interfere with Aeolian sand transport in the area. Because the footprint of the transmission poles would be small, the interference with Aeolian sand transport would not be substantially adverse and the sand transport would be able to travel around each transmission pole footprint. If transmission

access roads were to be stabilized with aggregate or bermed, this could represent a substantial adverse change in Aeolian sand transport along the 1-mile segment of Alternative E within the sand-transport corridor. MM VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat) in Section 4.3, Biological Resources – Vegetation, includes a requirement to compensate for impacts to windblown and stabilized sand habitat at a 5:1 ratio. This would mitigate the potential effects.

Decommissioning

Alternative E would disturb a similar area of land area and occur in a nearly identical geological setting as Alternative B. Therefore, the effects of decommissioning Alternative E on seismic and geologic hazards as well as on erosion and sand transport would be nearly identical to those discussed for Alternative B.

Mitigation Measures

The same mitigation measures would apply to Alternative E as would apply to Alternative 4, with the addition of the following:

MM VEG-6 Provide Off-Site Compensation for Impacts to Vegetation and Habitat. (full text in Section 4.3, Biological Resources – Vegetation).

Residual Impacts and Unavoidable Adverse Effects

With the implementation of mitigation, the construction, operation and maintenance, and decommissioning of Alternative E would not result in any unavoidable adverse effects.

4.9.15 Cumulative Effects

Geographic Scope

The geographic area considered for cumulative effects related to soils and geologic hazards is within a 0.5-mile radius to the proposed project and alternatives for seismic events and erosion, and within the Aeolian sand transport corridor for impacts to sand transport. Tables 4.1-1 and 4.1-2 in Section 4.1.4 (Cumulative Scenario) list all existing and reasonably foreseeable projects in this area. Table 4.9-2 list the existing and foreseeable projects that would create cumulative soil or geologic effects in combination with any of the solar facility alternatives (Alternative 4 through 7) and the gen-tie line alternatives.

Table 4.9-2. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Soils and Geology	Within 0.5 mile of the proposed project for seismic events and erosion, within the Aeolian sand transport corridor for sand transport	Soil, wind, and water erosion, impacts to the sand transport corridor	Seismic Events • Desert Sunlight Solar Farm • Silverado Power Solar Project • Desert Sunlight Transmission Line (Alternatives B and C) • Red Bluff Substation • DPV1 Transmission Line • Blythe Energy Project Transmission Line • I-10 • DPV No. 2 Transmission Line • Chuckwalla Race Track (Alternative D) • Desert Center 50 Solar Project (Alternative D) Sand Transport Corridor • Palen Solar Power Project (Alternative E)

The foreseeable projects that would create cumulative soil or geologic effects in combination with any of the solar field action alternatives (Alternatives 4 through 7) include the DSSF Project and the Silverado Power Solar Project. With respect to the gen-tie line alternatives (Alternatives B through E), Alternative C would have the potential for cumulative effects in combination with the Desert Sunlight transmission line, as Alternative C would utilize the same ROW. Alternative D would have the potential for cumulative effects in combination with the Silverado Power Solar Project, Desert Center 50 Solar Project, and the Chuckwalla Race Track. Alternative E would be within the Aeolian sand transport corridor along with the Palen Solar Power Project. All four gen-tie line alternatives (Alternatives B through E) could result in cumulative effects in combination with the Red Bluff Substation, I-10, and DPV1, DPV2, and the Blythe Energy Project Transmission Line. Alternative B would not have the potential to contribute to cumulative effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

The temporal scope of this cumulative analysis is considered the period within which a soils and geologic hazard of the proposed project or an alternative is actively present. Because the operation and maintenance of the DHSP would expose people and/or structures to seismic hazards, a cumulative effect could occur if another project within a 0.5-miles radius would also expose people and/or structures to seismic hazards.

Cumulative Effects Analysis

Past, present, and future projects in the cumulative analysis area would all be susceptible to similar risks from seismic events. Adherence to state and local regulations related to site engineering would be required. The Alternative 4 would implement MM PHS-5 (Emergency Response Plan), and other projects would likely require similar measures. Appropriate engineering and mitigation would minimize both the incremental risk related to Alternative 4 and the overall cumulative effects. Consequently, there would be no substantial adverse cumulative effects related to seismic hazards.

Alternative 4 together with other past, present, and reasonably foreseeable projects have the potential to have adverse cumulative effects related to soil erosion. Any disturbance to surface soils could expose soils to the effects of wind and water. Activities including grading, compaction, drilling, back-filling, and driving on unpaved roadways could disturb soils at any work site, regardless of the type of project. There could potentially be cumulatively additive effects related to wind and water erosion for projects that are in very close proximity and that are undergoing ground disturbing activities at the same time, such as the DSSF and Silverado Power Project. Effects of more distant projects would not be cumulatively additive. However, the incremental effects of the proposed project would be minimal because the project owner would be required to adhere to regulatory requirements and implement AM GEO-2, MM AIR-1, MM AIR-3, MM WAT-1, and MM WAT-4, which would minimize erosion. Similarly, other existing and reasonably foreseeable projects would be required to implement comparable erosion control measures. Wind and water erosion of soil effects are less likely during operation and maintenance of any project due to site coverage by asphalt, concrete, structures, or vegetation.

The geological and soil effects for Alternatives 5 through 7, and C through D would be essentially the same as described for the Alternative 4 and would not represent substantial adverse cumulative effects. The No Action and No Development Action Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. Alternative B would not contribute to cumulative effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Alternative E's access roads could affect Aeolian sand transport, these effects would be cumulatively additive with effects the Palen Solar Power Project, which would affect Aeolian sand transport in the same sand transport corridor as Alternative E. As noted in the Palen Solar Power Project Final EIS (2010), the impacts of the project as proposed to the sand transport corridor would be regionally-significant. Although the effect of Alternative E on the Aeolian sand transport corridor would be small, it would represent a substantial adverse cumulative effect due to the additive impact of the Palen Solar Power Project as proposed.

4.9.16 CEQA Considerations

CEQA Significance Criteria

The proposed project and alternatives would have a significant impact on geology and soil resources if they would:

GS-1 Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving geologic hazards;

GS-2 Allow people or structures to be subject to strong seismic shaking;

GS-3 Be subject to seismic-related ground failure including liquefaction;

GS-4 Be located where landslides could cause substantial soil erosion or the loss of topsoil or disturb any human remains including those interred outside of formal cemeteries;

GS-5 Be located on expansive soils as defined in Table 18-1B of the Uniform Building Code (1987) that is based in part on the International Building Code that would create substantial risks to life or property;

GS-6 Be located on a geologic unit or soil that is unstable, or would become unstable as a result of the project and potentially result in on-site or off-site landside, lateral spreading, subsidence, liquefaction or collapse;

GS-7 Result in the physical alteration of or damage to geologic features; or

GS-8 Result in substantial soil erosion or loss of topsoil.

For the proposed project and alternatives, the following criteria were determined to be inapplicable or to result in no impact. The determination regarding these significance criteria is discussed below and then these significance criteria are not discussed further in this section.

- Be located on a known earthquake fault as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning map

No component associated with the proposed project and alternatives has been identified within an Alquist-Priolo Earthquake Fault Zone. There would be no impacts under this criterion.

- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water

The proposed project would require installation of a septic system for the O&M Building. However, no soils within the DHSP area have been identified as unsuitable for septic systems, and therefore there would be no impacts under this criterion.

CEQA Significance Determination

Alternatives 1, 2, and A would not involve construction of the solar project or gen-tie line. These alternatives would have no impacts related to soils or geologic hazards (Criteria G-1 through G-8), and therefore there are no CEQA significance determinations for these alternatives.

Alternative 4

Geologic Hazards. The construction, operation and maintenance, and decommissioning of Alternative 4 in a region prone to seismic events could result in impacts to on-site workers and facilities (CEQA Significance Criteria GS-1, GS-2, GS-4, GS-5, GS-6, and GS-7). Adverse impacts, including loss of property or injury or death, involving rupture of known earthquake faults, strong seismic ground shaking, and seismic-related ground failure would be potentially significant. Soils in the vicinity of Alternative 4 have been identified as susceptible to subsidence during a seismic event. Due to the location of Alternative 4, there would be no potential impacts related to slope instability resulting from a seismic event. With the implementation of MM PHS-5 (Emergency Response Plan), impacts related to seismic events (CEQA significance criteria GS-1, GS-2, GS-4, GS-5, GS-6, and GS-7) would be less than significant. Groundwater is found at sufficient depths that soils within the region are not likely to be subject to liquefaction during a seismic event (CEQA significance criterion GS-3); therefore, no impact would occur from liquefaction.

Soil Erosion. Soils at solar facility site would be susceptible to erosion, especially once soil crusts are disturbed (CEQA Significance Criteria GS-4 and GS-8). Implementation of MM AIR-1 (Fugitive Dust Control Plan) would increase soil stabilization and minimize wind erosion/fugitive dust. AM GEO-2 (design features) identifies BMPs that would be used to ensure that water used for dust suppression would be contained within the construction area. This measure would be supplemented by MM WAT-1 (demonstrate compliance with water quality permits) and MM WAT-4 (drainage design specifications). With the implementation of these measures, impacts related to soil erosion (CEQA Significance Criteria GS-4 and GS-8) would be less than significant.

Cumulative Impacts. With the implementation of mitigation, Alternative 4 would have minimal impacts related to geologic hazards and soil erosion. Therefore, Alternative 4 would not represent a considerable contribution to any cumulative impacts related to geologic hazards or soil erosion (Significance Criteria GS-1 through GS-8).

Alternative 5

Impacts for Significance Criteria GS-1 through GS-8 would be the same for Alternative 5 as for Alternative 4 as discussed in Section 4.9.7.

Alternative 6

Impacts for Significance Criteria GS-1 through GS-8 would be the same for Alternative 6 as for Alternative 4 as discussed in Section 4.9.8.

Alternative 7

Impacts for Significance Criteria GS-1 through GS-8 would be the same for Alternative 7 as for Alternative 4 as discussed in Section 4.9.8.

Alternative B

Geologic Hazards. The construction, operation and maintenance, and decommissioning of Alternative B in a region prone to seismic events could result in impacts to on-site workers and facilities (CEQA Significance Criteria GS-1, GS-2, GS-4, GS-5, GS-6, and GS-7). Adverse impacts, including loss of property or injury or death, involving rupture of known earthquake faults, strong seismic ground shaking, and seismic-related ground failure would be potentially significant. Soils in the vicinity of Alternative B have been identified as susceptible to subsidence during a seismic event. Due to the location of Alternative B, there would be no potential impacts related to slope instability resulting from a seismic event. With the implementation of MM PHS-5 (Emergency Response Plan), impacts related to seismic events (CEQA significance criteria GS-1, GS-2, GS-4, GS-5, GS-6, and GS-7) would be less than significant. Groundwater is found at sufficient depths that soils within the region are not likely to be subject to liquefaction during a seismic event (CEQA significance criterion GS-3); therefore, no impact would occur from liquefaction.

Soil Erosion. Soils at the Alternative B site would be susceptible to erosion, especially once soil crusts are disturbed (CEQA Significance Criteria GS-4 and GS-8). Implementation of MM AIR-1 (Fugitive Dust Control Plan) would increase soil stabilization and minimize wind erosion/fugitive dust. AM GEO-2 (design features) identifies BMPs that would be used to

ensure that water used for dust suppression would be contained within the construction area. This measure would be supplemented by MM WAT-1 (demonstrate compliance with water quality permits) and MM WAT-4 (drainage design specifications). With the implementation of these measures, impacts related to soil erosion (CEQA Significance Criteria GS-4 and GS-8) would be less than significant.

Cumulative Impacts. Alternative B would not contribute to cumulative effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Alternative C

Project-level impacts for Significance Criteria GS-1 through GS-8 would be essentially the same for Alternative C as for Alternative B as discussed in Section 4.9.12.

With the implementation of mitigation, Alternative C would have minimal impacts related to geologic hazards and soil erosion. Therefore, the project would not represent a considerable contribution to any cumulative impacts related to geologic hazards or soil erosion (Significance Criteria GS-1 through GS-8).

Alternative D

Impacts for Significance Criteria GS-1 through GS-8 would be essentially the same for Alternative D as for Alternative C.

Alternative E

Impacts for Significance Criteria GS-1 through GS-8 would be essentially the same for Alternative E as for Alternative C as discussed in Section 4.9.14, except for impacts on Aeolian sand transport as described in Section 4.9.14. The same mitigation measures would apply as appropriate, including MM VEG-6, which would compensate for impacts to Aeolian sand transport. Impacts to the Aeolian sand transport that result from Alternative E could combine with impacts of the Palen Solar Power Project to be cumulatively significant. Implementation of MM VEG-6 will reduce the contribution of Alternative E to less than significant.

4.10 ENERGY AND MINERAL RESOURCES

4.10.1 Methodology for Analysis

This section describes effects on energy and mineral resources from the implementation of the proposed project and alternatives. The following discussion addresses potential environmental effects related to energy and mineral resources associated with construction, operation, and decommissioning of the proposed project and alternatives. A discussion of cumulative effects related to energy and mineral resources is also included in this section. Baseline conditions for the environmental setting relevant to energy and mineral resources are presented in Section 3.10 of this EIS. Construction activities, operation and maintenance activities, and decommissioning of the proposed project or an alternative were evaluated based on their potential to affect the baseline conditions.

4.10.2 Applicant Measures

No Applicant Measures for energy and mineral resources have been identified for the project or alternatives.

4.10.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the California Desert Conservation Plan of 1980, as amended (CDCA Plan). As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects from the project would not occur.

4.10.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Plan. It is possible that, as a result of the CDCA Plan amendment, that in the future another solar energy generation project could be proposed with impacts similar to the DHSP, however, such impacts are speculative at this time, and no effects from the DHSP would occur.

4.10.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.10.6 Alternative 4 – Proposed Solar Project

Section 3.10 of this EIS indicates that no oil, gas, or geothermal fields or active mineral claims are located on the solar facility site. Table 3.10-2 (Mineral Resources in the project area) indicates that the Mineral Resources Data System (MRDS), administered by the U.S. Geological Survey (USGS), has record of 3 "past producers" of mineral resources (gold, sand/gravel, and talc-soapstone, respectively) located within 5 miles of the solar facility site. There are no known locatable or salable mineral resources within the solar facility site, and no current producers of energy or mineral resources within 5 miles of the solar facility site.

Construction

Direct and indirect effects to energy and mineral resources resulting from Alternative 4 construction, as discussed below, include those effects which are caused by the action and occur at the same time and place (direct) and those effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable (indirect).

Direct Effects

USGS identifies three mineral resource operations within five miles of Alternative 4 (Table 3.10-1), but none of the mines are active. Moreover, no existing operations or mines are located on the solar facility site. Therefore, access to currently active mineral resource operations would not be affected by construction of Alternative 4. Additionally, in 2009, and renewed in 2011, BLM segregated the Riverside East Solar Energy Zone (SEZ), which the project is located, from the operation of the mining law for two years.

Section 2.4.3 (Structures and Facilities) and Table 3.10-3 (Mineral Resources Contained in Project Construction Materials) of this EIS describe that a source(s) of sand and gravel would be required during proposed project construction. Table 3.10-3 also identifies that a source(s) of metallic and non-metallic minerals would be required to produce steel and aluminum for project components, including the transformer, switchyard, transmission line, and PV panels. Appropriate source(s) of sand and gravel in proximity to the solar facility site would be identified by a construction contractor and permitted through the BLM. Sand and gravel resources are common in the project study area, and construction of Alternative 4 would not substantially affect the supply of these minerals. Metallic and non-metallic resources associated with project components would be procured by the manufacturer(s) of such components, and use of these resources would not substantially affect supply of these materials.

Construction of Alternative 4 would also require the use of energy resources in the form of fuel for vehicles and equipment. Energy resources for construction vehicles and equipment are readily available in the project study area, and the consumption of such resources during construction would not constitute a substantial effect.

The proposed solar facility is located in the Draft Solar Programmatic EIS-designated proposed Riverside East SEZ. The Programmatic EIS is evaluating the BLM's proposed actions to establish a new BLM Solar Energy Program applicable to utility-scale solar energy development on BLM-administered lands in six southwestern states (including California). Therefore, the use of the solar facility site for solar energy generation would be consistent with the Solar Energy Zone. Additionally, because the DHSP's Form 299 was filed and accepted by BLM prior to 30 June 2009, the project qualifies as a "pending project" under the terms of the Final Solar

Programmatic EIS (PEIS) and therefore would not be subject to its terms if the PEIS is adopted in its current form.

Indirect Effects

Development of Alternative 4 would not alter the jurisdiction or authority of the BLM related to mineral resources on BLM land. Construction of Alternative 4 would not permanently preclude the availability of the solar facility site for exploration, extraction, and transport of mineral resources. However, use of the solar facility site for renewable energy development would have a temporary impact that would preclude use of that site for mineral resource development for the projected 30-year life of the project.

Operation and Maintenance

Direct Effects

Operation and maintenance activities would include the upkeep of internal access roads, and new gravel may be occasionally applied to ensure the integrity of road surfaces. It is anticipated that the same gravel source(s) used for construction of Alternative 4 would be used during the operation and maintenance phase. As described above, the source(s) of gravel during construction would be identified by a construction contractor and permitted through the BLM. The quantity of aggregate needed for operation and maintenance of Alternative 4would be far less than that needed for construction, and would not substantially affect the supply of these materials.

Metallic and/or non-metallic resources may also be required during operation and maintenance of the project, if certain facilities or infrastructure require replacement. In addition, energy resources in the form of fuel for operational vehicles and equipment would be required. The quantity of these resources needed for operation and maintenance of the project would be far less than would be needed for construction, and the use of these resources would not substantially affect regional supplies.

Access to currently active mineral resource operations would not be affected by operations and maintenance of Alternative 4.

Indirect Effects

Development of Alternative 4 would not alter the jurisdiction or authority of the BLM related to mineral resources on BLM land. Operation and maintenance of Alternative 4 would not permanently preclude the availability of the solar facility site for exploration, extraction, and transport of mineral resources. However, use of the solar facility site for renewable energy development would have a temporary impact that would preclude use of that site for mineral resource development for the projected 30-year life of the project.

Decommissioning

Direct Effects

Decommissioning Alternative 4 would not require a source of mineral resources. Energy resources in the form of fuel for decommissioning vehicles and equipment would be required; however, these resources are readily available in the project study area, and the consumption of such resources during decommissioning would not constitute a substantial effect. Decommis-

sioning Alternative 4 would not directly interfere with any active energy or mining operations, and would not substantially affect supplies of energy or mineral resources.

Indirect Effects

Decommissioning Alternative 4 would not result in any indirect effects to energy or mineral resources.

Mitigation Measures

Construction, operation and maintenance, and decommissioning of Alternative 4 would not result in substantial adverse direct or indirect effects to energy and mineral resources. No mitigation measures are proposed.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative 4 would not result in any unavoidable adverse effects.

4.10.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would be constructed in the same location as Alternative 4 and would use the same project boundaries as Alternative 4, except that it would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA).

Construction

Excluding the WHMA from development under Alternative 5 would require a proportionately smaller supply of energy and mineral resources. This difference would be negligible with regards to the potential impacts of Alternative 5 on energy and mineral resources relative to Alternative 4 and therefore the effects of Alternative 5 would be substantially similar to Alternative 4.

Operation and Maintenance

Potential effects to energy and mineral resources associated with operation and maintenance of Alternative 5 would be the same as described in Section 4.10.6 for Alternative 4.

Decommissioning

Potential effects to energy and mineral resources associated with decommissioning of Alternative 5 would be the same as described in Section 4.10.6 for Alternative 4.

Mitigation Measures

Construction, operation and maintenance, and decommissioning of Alternative 5 would not result in substantial adverse direct or indirect effects to energy and mineral resources. No mitigation measures are proposed.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative 5 would not result in any unavoidable adverse effects to energy and mineral resources.

4.10.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would be constructed in the same location as Alternative 4, but would exclude the 155-acre southern parcel of Alternative 4 and a small portion of the northern parcel that contains sensitive plant species, crucifixion thorn, as shown on Figure 2-10, Alternative 6: Reduced Footprint Solar Project, in Appendix A.

Construction

Because of its smaller footprint, Alternative 6 would require a proportionately smaller supply of energy and mineral resources. This difference would be negligible with regards to the potential impacts of Alternative 6 on energy and mineral resources relative to Alternative 4, and therefore the effects of Alternative 6 would be substantially the same as Alternative 4.

Operation and Maintenance

Potential effects to energy and mineral resources associated with operation and maintenance of Alternative 6 would be the same as described in Section 4.10.6 for Alternative 4.

Decommissioning

Potential effects to energy and mineral resources associated with decommissioning of Alternative 6 would be the same as described in Section 4.10.6 for Alternative 4.

Mitigation Measures

Construction, operation and maintenance, and decommissioning of Alternative 6 would not result in substantial adverse direct or indirect effects to energy and mineral resources. No mitigation measures are proposed.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative 6 would not result in any unavoidable adverse effects to energy and mineral resources.

4.10.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet.

Construction

Because of its smaller footprint, Alternative 7 would require a proportionately smaller supply of energy and mineral resources. This difference would be negligible with regards to the potential impacts of Alternative 7 on energy and mineral resources relative to Alternative 4, and therefore the effects of Alternative 7 would be substantially the same as Alternative 4.

Operation and Maintenance

Potential effects to energy and mineral resources associated with operation and maintenance of Alternative 7 would be the same as described in Section 4.10.6 for Alternative 4.

Decommissioning

Potential effects to energy and mineral resources associated with decommissioning of Alternative 7 would be the same as described in Section 4.10.6 for Alternative 4.

Mitigation Measures

Construction, operation and maintenance, and decommissioning of Alternative 7 would not result in substantial adverse direct or indirect effects to energy and mineral resources. No mitigation measures are proposed.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative 7 would not result in any unavoidable adverse effects to energy and mineral resources.

4.10.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, no energy and mineral resources effects related to construction, operations and maintenance, or decommissioning would occur.

Mitigation Measures

No mitigation measures for energy and mineral resources are required for Alternative A.

Residual Impacts and Unavoidable Adverse Effects

No energy or mineral resources effects would result from the implementation of Alternative A.

4.10.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Under Alternative B, the proposed gen-tie would utilize transmission infrastructure developed for First Solar's Desert Sunlight Solar Farm (DSSF) project by sharing the approved transmission towers. However, the baseline for environmental effects is the existing condition of the site in September 2011. At that time, construction of the DSSF transmission infrastructure had not yet commenced, so analysis of Alternative B includes all construction effects of this shared infrastructure.

Construction

Direct Effects

USGS identifies three mineral resource operations within five miles of project study area (Table 3.10-1). One of the mines is adjacent to Alternative B, but none of the mines is active. Therefore, access to currently active mineral resource operations would not be affected by construction of Alternative B.

Source(s) of energy and mineral resources would be required during construction of Alternative B due to infrastructure associated with transmission towers and the need to use construction vehicles and equipment. Appropriate source(s) of sand and gravel in proximity to the Alternative B site would be identified by a construction contractor and permitted through the BLM. Sand and gravel resources are common in the area, and construction of Alternative B would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or of a locally important mineral resource recovery site. Construction of Alternative B would not directly interfere with any active energy or mining operations, and would not substantially affect supplies of energy or mineral resources.

Indirect Effects

Development of Alternative B would not alter the jurisdiction or authority of the BLM related to mineral resources on BLM land and would not permanently preclude the availability of the gen-tie line alignment for exploration, extraction, and transport of mineral resources.

Operation and Maintenance

Operation and maintenance of Alternative B may include repair or replacement of the gen-tie line, as necessary, and such activities could potentially require a source of energy resources for fuel associated with vehicles and equipment, and a source of mineral resources associated with the repair or replacement of project features. If needed, it is anticipated that the same source(s) of energy and mineral resources used for construction of Alternative B would be used during the operation and maintenance phase. Operation and maintenance of Alternative B would not result in the loss of availability of an active mineral recovery operation or substantially affect supplies of mineral or energy resources.

Indirect Effects

Development of Alternative B would not alter the jurisdiction or authority of the BLM related to mineral resources on BLM land and would not permanently preclude the availability of the gen-tie line alignment for exploration, extraction, and transport of mineral resources.

Decommissioning

Decommissioning of Alternative B would not require a source of mineral resources. Energy resources in the form of fuel for decommissioning vehicles and equipment would be required; however, energy demands associated with decommissioning are readily available in the project study area, and the consumption of such resources during decommissioning would not constitute a substantial effect. Decommissioning of Alternative B would not directly interfere with any active mining operations and would not constitute a substantial effect on regional energy or mineral supplies.

Mitigation Measures

Construction, operation and maintenance, and decommissioning of Alternative B would not result in substantial adverse direct or indirect effects to energy and mineral resources such that mitigation measures are required. No mitigation measures are proposed.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative B would not result in any unavoidable adverse effects.

4.10.12 Alternative C – Separate Transmission Towers within Same ROW

Under Alternative C, the gen-tie line would parallel the approved DSSF gen-tie line, and would be located on separate towers within the DSSF ROW. The same number of towers in a nearly identical alignment to that of the DSSF gen-tie line would be constructed, and potential effects to energy and mineral resources associated with the Alternative C gen-tie line would be the same as potential effects to energy and mineral resources associated with the DSSF gen-tie line.

Construction

The effects of the construction of Alternative C would be the same as those of Alternative B.

Operation and Maintenance

The effects of operations and maintenance of Alternative C would be the same as those of Alternative B.

Decommissioning

The effects of decommissioning of Alternative C would be the same as those of Alternative B.

Mitigation Measures

Construction, operation and maintenance, and decommissioning of Alternative C would not result in substantial adverse direct or indirect effects to energy and mineral resources. No mitigation measures are proposed.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative C would not result in any unavoidable adverse effects.

4.10.13 Alternative D – Cross-Valley Alignment

Construction, operation and maintenance, and decommissioning of Alternative D would be the same as described for Alternatives B and C, except it would require slightly less temporary and permanent ground disturbance.

Construction

The effects of the construction of Alternative D would be the same as those of Alternative B.

Operation and Maintenance

Effects of operations and maintenance of Alternative D would be the same as for Alternative B.

Decommissioning

Effects of decommissioning of Alternative D would be the same as for Alternative B.

Mitigation Measures

Construction, operation and maintenance, and decommissioning of Alternative D would not result in substantial adverse direct or indirect effects to energy and mineral resources. No mitigation measures are proposed.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative D would not result in any unavoidable adverse effects.

4.10.14 Alternative E – New Cross-Valley Alignment

Construction, operation and maintenance, and decommissioning of Alternative E would be essentially the same as described for Alternative B, though permanent ground disturbance would be slightly reduced.

Construction

Effects would be the same for Alternative E as described above for Alternative D.

Operation and Maintenance

Effects would be the same as described for Alternative B.

Decommissioning

Effects would be the same as described for Alternative B.

Mitigation Measures

Construction, operation and maintenance, and decommissioning of Alternative E would not result in substantial adverse direct or indirect effects to energy and mineral resources. No mitigation measures are proposed.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative E would not result in any unavoidable adverse effects.

4.10.15 Cumulative Effects

Cumulative effects to energy and mineral resources can result from individually minor but collectively significant actions taken over time. Major past, present, and reasonably anticipated future projects in the area have been identified in Section 4.1.4 (Cumulative Scenario) of this EIS, and include energy generation, military uses, commercial and residential developments, and roadway improvements.

Geographic Scope

The geographic area considered for cumulative effects related to energy and mineral resources is within five miles of the proposed project and alternatives. A number of alternative energy projects are proposed within 5 miles, (see Tables 4.1-1 and 4.1-2 in Section 4.1. Table 4.10-1 lists the

existing and foreseeable projects that could combine with the DHSP to result in cumulative effects on mineral resources.

Table 4.10-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Energy and Minerals	Within 5-mile radius of the proposed project and alternatives	Loss of available energy and mineral resources	For the proposed project and all alternatives: • Desert Sunlight Solar Farm Project • Silverado Power Solar Project • Desert Center 5050 Solar Project • Chuckwalla Race Track • Eagle Mountain Pumping Plant • Eagle Mountain Pumped Storage Project (not for Alternative E) • Eagle Mountain Wind Project Met Towers (not for Alternative E) For Alternatives B through E: • Palen Solar Power Project • Sol Orchard • Red Bluff Substation • I-10 • DPV1 • DPV2 • Blythe Energy Project Transmission Line

The foreseeable projects that would combine with the proposed solar field area to create cumulative effects in combination with any of the solar field alternatives and gen-tie line alternatives (Alternatives 4 through7 and B through E) include the Desert Sunlight Solar Farm Project, the Silverado Power Solar Project, Desert Center 50 Solar Project, Chuckwalla Race Track, and Eagle Mountain Pumping Plant, Eagle Mountain Pumped Storage Project (not for Alternative E) and Eagle Mountain Wind Project Met Towers (not for Alternative E). The gen-tie line alternatives (Alternatives B through E), would have the potential for cumulative effects in combination with Sol Orchard, Palen Solar Power Project, the Red Bluff Substation, I-10, and DPV1, DPV2, and the Blythe Energy Project Transmission Line. Table 3.10-1 in Section 3.10 (Mineral Resources in the project area) describes all known past and current mineral developments within five miles of the proposed solar facility site. This table supplements the existing cumulative conditions relevant to mineral resources.

The temporal scope of this cumulative analysis is considered the period within which the proposed project or an alternative is actively present or being decommissioned because during the life of the project, the solar facility site cannot be used to harvest other mining materials or energy sources.

Cumulative Effects Analysis

Most of the projects listed in Tables 4.1-1 and 4.1-2 and identified on Figure 4.1-1 in Appendix A have either undergone independent environmental review pursuant to NEPA and/or CEQA or will do so prior to approval. Even if environmental review has not been completed for the cumulative projects described, their effects were considered in the cumulative effects analyses in this EIS.

Effects related to access to known mineral resources are site-specific. A cumulative effect would only occur where the proposed project would affect access to mineral resources in the same way, within the same time, and at the same location. There are no active mineral resource operations within the boundaries of the DHSP. USGS identifies three mineral resource operations near the project (Table 3.10-1), but none of the mines are active. As previously described, mining claims on public lands under BLM jurisdiction are subject to BLM authority. The presence of the DHSP would not alter this jurisdiction or authority and would not permanently preclude access to any known mineral resource. Therefore, access to mineral resources would not be substantially affected by construction, operation, or decommissioning of the DHSP, and the project would not contribute to any adverse cumulative effects.

More generally, energy and mineral resources are common in the project study area. Sand, gravel, metals, and fuels required for the proposed project or alternatives and existing and reasonably foreseeable projects are widely available. Construction, operation, and decommissioning of the proposed project and existing and reasonable foreseeable projects would not substantially affect supply of these resources. While effects related to mineral and energy resource supply would be additive, the construction and operation of other existing and foreseeable projects would also not substantially affect supply of these resources; therefore, there would be no adverse cumulative effects.

Effects related to mineral and energy resources for Alternatives 5 through 7, and C through E would be essentially the same as described for the proposed project and with the contribution of existing and reasonable foreseeable projects would not represent substantial adverse cumulative effects. The No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. Alternative B would not contribute to cumulative effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

4.10.16 CEQA Considerations

This section is included in this EIS for future use by CEQA Lead and Responsible agencies, and is not required under NEPA.

CEQA Significance Criteria

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines; although the impact analysis presented in Sections 3.10.3 through 4.10.14 address both energy and mineral resources, the CEQA significance criteria are specific to mineral resources. These criteria are used to determine whether the proposed project or alternative would result in significant impacts to mineral resources under CEQA. The proposed project and alternatives would result in a significant impact to mineral resources if one of the following criteria are met.

MIN-1 Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

MIN-2 Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

CEQA Significance Determination

Alternatives 1, 2, 3, and A would not involve construction of the solar facility or gen-tie line. These alternatives would have no impacts on mineral or energy resources.

The proposed project and alternatives would require a source(s) of mineral resources during the construction and operation/maintenance phases, but development of the solar facility site would not interfere with any active mining operations, and would not constitute a substantial impact on regionally or locally important mineral resources. Development of the proposed project or an alternative does not alter BLM's jurisdiction or authority as related to mineral claims and explorations, and the potential for future explorations for mineral resources to occur on the solar facility site during the lifetime of the project would continue to be subject to BLM approval. However, use of the solar facility site for renewable energy development would have a temporary impact that would preclude use of that site for mineral resources that would persist for a significant duration, the expected 30-year life of the project. Additionally, temporary access restrictions to mineral resources could occur as a result of project-related traffic. Therefore, Significance Criterion MIN-1 is addressed in the following discussion.

Construction, operation and maintenance, and decommissioning of the proposed project or an alternative would not result in impacts associated with the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan (Significance Criterion MIN-2); therefore, Significance Criterion MIN-2 would not be met by the project or an alternative and is not addressed below.

Alternative 4

During construction and decommissioning of Alternative 4, traffic associated with the project would have the potential to affect mineral resources production in the project vicinity. However, there are no active mines within five miles of the project site at this time (MRDS 2011). Any potential access restrictions associated with the movement of vehicles and equipment to and from the site would be temporary.

During operation and maintenance of Alternative 4, access onto and across the solar facility site for the purposes of mineral exploration and extraction would be subject to the continued permitting authority of the BLM. Traffic associated with operation and maintenance of Alternative 4 would have a small potential to result in temporary access restrictions to mineral operations in the area; however, this would not result in impacts associated with the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. Since BLM would still have jurisdiction over mineral resources on BLM land and any traffic-related effects on access to mineral resources would be temporary, the impacts of Alternative 4 related to Significance Criterion MIN-1 would be less than significant, and no mitigation is required.

Cumulative Impacts. Any impacts related to Significance Criterion MIN-1 would be minimal. Therefore, Alternative 4 would not represent a considerable contribution to any cumulative impacts to mineral resources.

Alternative 5

Impacts would be the same as for Alternative 4.

Alternative 6

Impacts would be the same as for Alternative 4.

Alternative 7

Impacts would be the same as for Alternative 4.

Alternative B

During construction and decommissioning of Alternative B, traffic associated with the gen-tie line alternative would have the potential to affect mineral resources production in the project vicinity. However, there are no active mines within five miles of the ROW at this time (MRDS 2011). Any potential access restrictions associated with the movement of vehicles and equipment to and from the site would be temporary.

During operation and maintenance of Alternative B, access across the ROW for the purposes of mineral exploration and extraction would be subject to the continued permitting authority of the BLM. Traffic associated with operation and maintenance of Alternative B would be negligible and would not result in impacts associated with the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. Since BLM would still have jurisdiction over mineral resources on BLM land and any traffic-related effects on access to mineral resources would be temporary, the impacts of Alternative B related to Significance Criterion MIN-1 would be less than significant, and no mitigation is required.

Alternative C

Impacts would be essentially the same as for Alternative B.

Alternative D

Impacts would be essentially the same as for Alternative B.

Alternative E

Impacts would be essentially the same as for Alternative B.

Cumulative Impacts. Any impacts related to Significance Criterion MIN-1 would be minimal. Therefore, the project would not represent a considerable contribution to any cumulative impacts to mineral resources.

CEQA-Required Energy Conservation Analysis

In order to ensure that energy implications are considered in project decisions, CEQA requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy (see Public Resources Code section 21100(b)(3)). According to Appendix F of the State CEQA Guidelines, the goal of conserving energy implies the wise and efficient use of energy including: (1) decreasing overall per capita energy consumption; (2) decreasing reliance on fossil fuels; and (3) increasing reliance on renewable energy sources.

The DHSP itself would help achieve this goal because it would develop a renewable source of power, helping to offset the use of nonrenewable resources and contribute to an overall reduction of nonrenewable resources currently used to generate electricity. This is discussed in more detail below. In addition, Section 4.5 (Climate Change) describes effects on climate change/greenhouse gas emissions that would be caused by implementation of the DHSP, including a discussion on the effects of the projects on energy resources. Sections 4.2 (Air Quality) and 4.18 (Transportation) also discuss energy consuming equipment and vehicle trips required by the proposed project and alternatives.

In the absence of the DHSP, other power plants, both renewable and nonrenewable, may have to be constructed to serve the demand for electricity and to meet the California Renewables Portfolio Standard (RPS). Existing gas-fired plants may operate longer in order to meet the demand for energy. The impacts of these other facilities may be similar to those of the proposed solar facility because they require land areas comparable in size and environmental impacts comparable in degree to those required for the DHSP, whether for energy production or fuel extraction. Additionally, the environmental impacts of developing transmission capacity for such other power plants may be greater, especially where no transmission capacity exists or where energy production cannot be geographically concentrated to minimize the number of new transmission lines needed.

If the proposed solar facility were not built, California utilities would not receive the 150 MW contribution to the renewable state-mandated energy portfolio. SB X1-2 codifies the requirement to achieve 33 percent RPS statewide by the end of 2020, a key element of the 2008 AB 32 Scoping Plan (CARB 2008). To meet these requirements, the investor-owned utilities (IOUs) will have to almost triple their annual renewable energy procurement, from 33 terawatt-hours (TWh) in 2010 to 87 TWh by 2020. The project is expected to generate at least 300,000 MWh of renewable energy annually over its lifetime, a small but significant portion of the necessary new generation. In addition to contributing to renewable energy generation, specific measures and design features included by the DHSP Applicant in the project description that would conserve energy include:

- Requiring contractors to submit and implement a transportation plan describing how workers would travel to the project site and how to encourage carpooling and alternative forms of transportation (Applicant Measure AQ-4); and
- Commitment to recycling components from solar facility after decommissioning (Applicant Measure HAZ-10, Decommissioning Plan).

Specific requirements in project mitigation measures that would conserve energy and minimize inefficient and unnecessary consumption of energy include:

- Mitigation measure to control on-site emissions (MM AIR-2) and increase equipment efficiency (MM AIR-4);
- Mitigation measure requiring the project owner to recycle photovoltaic panels and other infrastructure (MM PHS-6); and
- Mitigation measure requiring the project owner develop a master Drought Water Management Program and a master Water Conservation Education Program (MM WAT-6).

Compliance with the applicant measures and mitigation measures identified in this EIS, would ensure that the proposed project and alternatives would not involve wasteful, inefficient, or unnecessary consumption of energy.

4.11 LANDS AND REALTY

4.11.1 Methodology for Analysis

The BLM Master Title Plats (MTPs) and Land and Mineral Legacy Rehost 2000 System of automated records (LR2000) were reviewed to obtain information related to pending and authorized uses on the lands potentially affected by the proposed project and alternatives. Effects assessment with respect to NEPA was based on known impacts relative to construction, operation, maintenance and decommissioning of right-of-way (ROW) and land-use permits of all types on BLM-administered land.

4.11.2 Applicant Measures

The following Applicant Measure (AM) has been incorporated as design features of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project. In some cases, mitigation measures further clarify or expand on AM reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures imposed and the following AM, the mitigation measures take precedence.

AM LU-1 **Notification.** Property owners within 300 feet of the project shall be notified of all major project construction milestones, such as start of project construction. Said property owners shall be provided with a detailed construction schedule at least 30 days before construction so that they are informed as to the time and location of disturbance. Updates shall be provided as necessary.

4.11.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the DHSP would not be approved by the BLM, and BLM would not amend the California Desert Conservation Area Plan 1980, as amended (CDCA Plan). As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would remain in its existing condition in the near future, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects from the project would not occur. A wide variety of uses such as mining, livestock grazing, recreation, energy, and the development of new utility facilities are allowed on the site under the BLM's land use designation of Class M, and it is possible that another applicant would use the site for an allowed land use in the future. Impacts from these projects would be dependent on the type of use proposed, and a separate NEPA process would be required.

4.11.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and the BLM would

manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

4.11.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and the BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

4.11.6 Alternative 4 – Proposed Solar Project

Construction

Direct Effects

Existing and Planned Land Uses. Construction of Alternative 4 would develop 1,208 acres of undeveloped BLM-administered land, designated Multiple Use Class (MUC) M (Moderate Use) by the CDCA Plan. Per the CDCA Plan, solar energy generation facilities may be allowed on Class M land after NEPA requirements are met. The EIS addresses that requirement. Additionally, because DHSP project site is not currently identified as being associated with power generation, approval of Alternative 4 would require the CDCA Plan to be amended to identify the site as eligible for solar power generation. Therefore, Alternative 4 would not conflict with the CDCA Plan.

Two existing ROWs and one proposed ROW cross or would cross the southwestern portion of Alternative 4. Alternative 4 solar panels would avoid the existing and proposed transmission lines; however, the electrical collection systems would potentially cross the existing transmission ROWs. Because Alternative 4 would be subject to the previously existing ROW or other uses, Mitigation Measure LR-1 (Prior ROW Coordination Plan) is required to minimize impacts to prior ROW holders as required by the BLM. The BLM sent a letter to the Applicant on August 22, 2011 that listed the existing prior authorizations and segregations and advised the Applicant to coordinate the proposed solar energy development with the holders of prior existing rights. The BLM send letters to the Federal Energy Regulatory Commission and Southern California Edison in August 2011 notifying them of the proposed solar facility.

The Eagle Mountain Pumped Storage Project is planned to include a transmission line traversing the southwest parcel of the proposed DHSP (see Figure 2-3a in Appendix A). A Final EIS was published January 20, 2012. A Record of Decision has not yet been published. The Eagle Mountain Pumped Storage Project proposed transmission line would be a double circuit 500-kV transmission line that generally paralleled Eagle Mountain Road. The preferred alternative for the transmission line would parallel the existing 160-kV SCE transmission line for 10.5 miles. The electrical collection systems for Alternative 4 would potentially cross the preferred alternative. Because Alternative 4 would be subject to the previously existing ROW or other uses, Mitigation Measure LR-1 (Prior ROW Coordination Plan) is required to minimize impacts to prior ROW holders as required by the BLM. The Solar Energy Development Programmatic EIS is, similarly, in its draft form. As it does not describe any specific development in the vicinity of

Alternative 4, but is intended to plan for future solar development in the area, Alternative 4 would not conflict with any planned uses in the Solar Energy Development Programmatic EIS and would be consistent with planned uses described therein.

Habitat Conservation Areas. The NECO Plan serves as the Habitat Conservation Plan for the project study area. It designates the Chuckwalla DWMA and Critical Habitat Unit (CHU) and the Alligator Rock ACEC as habitat conservation areas. Alternative 4 would not overlap with and therefore would not affect these habitat conservation areas. The Palen-Ford WHMA overlaps 47 acres of Alternative 4 in its northeast corner (see Figure 3.11-1 in Appendix A). This portion of the WHMA is nearly linear, abutted directly to the north by the Desert Sunlight Solar Farm (DSSF) project. Construction of Alternative 4 would heavily affect the portion of the WHMA it overlaps. Because of its shape, small size, and low connectivity to the rest of the WHMA, affecting this area would have little effect on the management of the WHMA as a whole (see Section 4.4.7, Construction, Direct Effects: Wildlife Management Areas). Implementing Mitigation Measures to protect wildlife habitat and connectivity would reduce any potential land-use effects to the overall WHMA. Mitigation Measure VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat) and MM WIL-9 (Pro-Rated Contribution to the Desert Tortoise Population Connectivity Effectiveness Monitoring Plan) would offset Alternative 4 impacts to wildlife movement, including desert tortoise population connectivity, in the upper Chuckwalla Valley. MM VEG-6 incorporates the requirement that "the primary focus area for acquiring parcels to maintain/improve connectivity will be along the I-10 corridor between Desert Center and Cactus City with a priority on parcels that connect conserved lands on either side of the I-10 through large culverts or bridges; the habitat compensation ratio for mitigation lands along the I-10 corridor shall be 1:1 for each acre of total long-term and permanent disturbance." MM WIL-9 would require the project owner to contribute on a pro-rated basis to funding the Desert Tortoise Population Connectivity Effectiveness Monitoring Plan conservation measure described in the Desert Sunlight Biological Opinion.

Alternative 4 would be located within the Riverside East Solar Energy Zone (SEZ) in the Solar Energy Development Programmatic EIS. The Solar Energy Development Programmatic EIS does not describe any specific development in the vicinity of Alternative 4 but is intended to plan for future solar development in the area. Alternative 4 would not conflict with any planned uses in the Solar Energy Development Programmatic EIS and would be consistent with planned uses described therein.

Agriculture. Alternative 4 would not affect any agricultural lands. The nearest agricultural lands are approximately 1,000 feet west of Alternative 4.

Indirect Effects

Construction effects associated with Alternative 4 would not result in substantial changes to population growth or density that would affect lands and realty or agriculture. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the WHMA or DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

Operation and Maintenance

The direct and indirect effects to land and realty resources resulting from the operation and maintenance of Alternative 4 would not be any different from the impacts related to the construction of the project, but would be somewhat less as the operation and maintenance would not impacts some land affected during construction, such as staging areas, resulting in a reduced footprint. With Alternative 4, approximately 1,208 acres of land managed by the BLM would be unavailable for other uses for approximately 30 years. No conflicts with the CDCA Plan, NECO Plan, or known existing or proposed land uses would occur.

A Federal Energy Regulation Commission (FERC) withdrawal area for the proposed Eagle Mountain Pumped Storage Project (EMPSP, "Power Project P-13123") overlaps the southwestern parcel of Alternative 4. As proposed, none of the proposed DHSP solar modules would overlap with this withdrawal area, though gravel access roads could potentially overlap. Mitigation Measure LR-2 would ensure that no incompatible project infrastructure would impact existing FERC exclusion or public land withdrawal areas, and that compatible infrastructure, such as access roads, would only be allowed in the FERC withdrawal areas if they do not preclude the licensed use or if the licensee is reimbursed for any costs related to the DHSP (see Appendix P for full text of BLM letter to FERC).

Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project study area in the WHMA or DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

Decommissioning

Direct Effects

Existing and Planned Land Uses. Decommissioning of Alternative 4 would temporarily affect a footprint similar to that of construction. When decommissioning is complete, the area would be restored to its existing BLM multiple use status, making the land available for other uses. Decommissioning would require coordination similar to that performed during construction where Alternative 4 overlapped existing uses (including roads and transmission lines). Once decommissioning is complete, Alternative 4 would no longer overlap these uses. No conflicts with the CDCA Plan, NECO Plan or known existing or proposed land uses would occur.

Applicable Land Use Plans, Policies, or Regulations. Land use plans, policies, or regulations may have changed by the time Alternative 4 would be decommissioned. A decommissioning plan would be created to ensure that decommissioning was conducted in accordance with then-current land use plans, policies, or regulations.

Habitat Conservation Areas. Decommissioning Alternative 4 would not affect any habitat conservation areas as the site does not currently overlap habitat conservation areas, nor would any be designated at the site while it would be in use as a solar farm. Decommissioning would create effects similar to those of construction in the WHMA, and mitigation measures for biological resources would reduce these effects. Mitigation Measure VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat) and MM WIL-9 (Pro-Rated Contribution to the Desert Tortoise Population Connectivity Effectiveness Monitoring Plan) would offset project impacts to wildlife movement, including desert tortoise population connectivity, in the upper Chuckwalla Valley. MM VEG-6 incorporates the requirement that "The primary focus area for

acquiring parcels to maintain/improve connectivity will be along the I-10 corridor between Desert Center and Cactus City with a priority on parcels that connect conserved lands on either side of the I-10 through large culverts or bridges; the habitat compensation ratio for mitigation lands along the I-10 corridor shall be 1:1 for each acre of total long-term and permanent disturbance." MM WIL-9 would require the project owner to contribute on a pro-rated basis to funding the Desert Tortoise Population Connectivity Effectiveness Monitoring Plan conservation measure described in the Desert Sunlight Biological Opinion.

Agriculture. Decommissioning Alternative 4 would not affect any agricultural lands as the site does not currently overlap agricultural lands, nor would any agricultural lands be designated on the site while it was being used as a solar farm.

Indirect Effects

Decommissioning of Alternative 4 would not result in substantial changes to population growth or density that would affect lands and realty or agriculture. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the solar facility area in the WHMA or DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

Mitigation Measures

The following mitigation measures would be implemented to reduce effects to ROW holders to the maximum extent feasible.

MM LR -1 **Prior ROW Coordination.** The project owner shall coordinate with any prior ROW holders, document the effect the new use would have on existing holders, and resolve any incompatibilities to the existing holders at the project owner's expense. The project owner shall bear all costs for relocating, modifying, or flagging any facilities such as power poles, conductors, or pipelines that might be necessary to accommodate the new use.

MM LR-2 **FERC Withdrawal Compatibility**. The project owner shall construct, operate, and maintain all facilities located within the Federal Energy Regulatory Commission (FERC) withdrawal area so as not to interfere with or preclude use of the withdrawn public lands for the EMPSP (Power Project P-13123). The DHSP project owner shall be responsible for any costs necessary to maintain or modify any DHSP facilities to accommodate use of public land under Power Project P-13123. If Power Project P-13123 is licensed by FERC, the project owner shall also be responsible for reimbursing the licensee for all reasonable costs incurred by the licensee as a result of the project owner's use of withdrawn public land. "Project components" include fencing, solar modules, overhead or underground transmission lines, gravel or paved access roads, or other project facilities that have the potential to interfere with the licensed use on the withdrawn land.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of the project would not result in any unavoidable adverse effects.

4.11.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would be constructed within the same project boundaries as Alternative 4, except that it would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA), as shown on Figure 2-9, in Appendix A.

Effects of construction, operation and maintenance and decommissioning under Alternative 5 would substantially the same as those under Alternative 4. The notable exception is that Alternative 5 would avoid direct effects to the WHMA as those lands would be excluded from the Alternative 5 site, and therefore measures would not be required to mitigate effects. No conflicts with the CDCA Plan or NECO Plan would occur. Because Alternative 5 would be subject to the same previously existing ROW or other uses as Alternative 4, Mitigation Measure LR-1 (Prior ROW Coordination Plan) is required to minimize impacts to prior ROW holders as required by the BLM.

Decommissioning

The effects resulting from decommissioning of Alternative 5 would be the same as those discussed under Alternative 4.

Mitigation Measures

The measure identified for Alternative 4 would also be implemented under Alternative 5.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of the project would not result in any unavoidable adverse effects.

4.11.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would exclude the 155-acre southern parcel of the solar facility site and a small portion of the northern parcel that contains sensitive plant species, crucifixion thorn, as shown on Figure 2-10, Alternative 6: Reduced Footprint Solar Project, in Appendix A.

Because the land removed from development consideration under Alternative 6 is all BLM land under the same designation as the rest of the solar facility, effects of the construction, operation and maintenance, and decommissioning of Alternative 6 on land use would not differ from those described with respect to Alternative 4; however, the magnitude would be reduced commensurate with the reduced footprint.

No conflicts with the CDCA Plan, NECO Plan, or known existing or proposed land uses would occur. Alternative 6 would not develop the southwestern portion of the project which is encumbered by previously existing ROW.

Decommissioning

The effects resulting from decommissioning of Alternative 6 would be the same as those discussed under Alternative 4.

Mitigation Measures

Construction, operation and maintenance, and decommissioning of the project would not result in substantial adverse direct or indirect effects to lands and realty such that mitigation measures are required. No mitigation measures are proposed.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative 6 would not result in any unavoidable adverse effects.

4.11.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet.

Because the land removed from development consideration under Alternative 7 is all BLM land under the same designation as the rest of the solar facility, effects of the construction and decommissioning of Alternative 7 on land use would not differ from those described with respect to Alternative 4; however, the magnitude would be reduced commensurate with the reduced footprint.

No conflicts with the CDCA Plan, NECO Plan, or known existing or proposed land uses would occur. Alternative 7 would not develop the southwestern portion of the project which is encumbered by previously existing ROW.

Operation and Maintenance

Higher panels used during operation of Alternative 7 have the potential to affect the DSSF immediately north of the DHSP by shading the DSSF's shorter panels. Implementation of Mitigation Measure LR-3 would eliminate this impact by ensuring that no shading of DSSF solar panels would occur.

Decommissioning

The effects resulting from decommissioning of Alternative 7 would be the same as those discussed under Alternative 4.

Mitigation Measures

The following mitigation measures would be implemented to reduce effects to ROW holders to the maximum extent feasible.

MM LR -3 **Eliminate DSSF Panel Shading**. If a higher panel alternative is adopted, the project owner shall ensure that the project layout does not result in shading of neighboring solar panels in the Desert Sunlight Solar Farm (DSSF), the existing ROW holder immediately north of the proposed solar facility site. The burden of proof shall rest with the project owner (of the Desert Harvest Solar Project [DHSP]) to demonstrate that no shading would occur on DSSF panels through

commissioning of an engineering study carried out by a qualified professional. The study shall be submitted to DSSF and BLM for review prior to BLM's issuance of a notice to proceed for the DHSP. DSSF shall be given 30 days to respond, and BLM has the final authority to approve or reject the findings of the study. If BLM determines that adjacent shading would occur, a notice to proceed for the DHSP will be withheld until a redesign of the DHSP shows no shading of adjacent DSSF panels, or until a suitable financial agreement is reached between the DSSF and the DHSP.

Residual Impacts and Unavoidable Adverse Effects

With implementation of MM LR-3, the construction, operation and maintenance, and decommissioning of Alternative 7 would not result in any unavoidable adverse effects.

4.11.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, no effects related to construction, operations and maintenance, or decommissioning would occur.

Mitigation Measures

No mitigation measures are required for Alternative A.

Residual Impacts and Unavoidable Adverse Effects

No effects would result from the implementation of Alternative A.

4.11.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Although Alternative B would share transmission infrastructure with the approved Desert Sunlight Solar Farm (DSSF) project, the baseline for environmental effects is the existing condition of the site in September, 2011. At that time, construction of the DSSF transmission infrastructure had not yet commenced, so analysis of Alternative B includes the full construction effects of this shared infrastructure.

Construction

Direct Effects

Construction of Alternative B would permanently disturb 92 acres within a ROW area of approximately 256 acres of primarily undeveloped multiple use BLM-administered land as a transmission line corridor. Alternative B would overlap the following existing authorized uses described in Table 3.11-2:

- Municipal Water District (MWD) ROW for canals and ditches;
- Two Southern California Edison (SCE) transmission lines;
- FERC Withdrawal for transmission and water supply;
- Interstate (I-) 10, which is under the jurisdiction of Caltrans;
- Underground telephone cable owned by Sprint;

- State Route (SR-)177, which is under the jurisdiction of Caltrans;
- Kaiser Road, which is under the jurisdiction of Riverside County;
- Southern California Gas Company water pipeline and well; and
- A privately-owned access road.

Adverse effects from road crossings would be temporary and limited to short-term traffic disturbance and access limitations during wire stringing. Towers would be sited to provide access and required buffers for the MWD ROW, the telephone cable, and the water pipeline and well, thus avoiding direct impacts to these existing land uses. The transmission lines could require minor design or siting modification, but all modifications would be done in accordance with existing laws and regulations by SCE and under the oversight of the California Public Utilities Commission and the California Independent System Operator. Adverse effects to existing land uses would be minimal.

Applicable Land Use Plans, Policies, or Regulations. The majority of Alternative B would be on BLM-administered land, approximately half of which is designated as Multiple Use Class M (Moderate Use) by the CDCA Plan. The other half of Alternative B would run along the west side of Kaiser Road, where it would be on land designated BLM Multiple Use Class L (Limited Use) by the CDCA Plan. Electrical generation, transmission, and distribution facilities may be allowed on both Moderate and Limited Use land within designated utility corridors after NEPA requirements are met and a plan amendment is approved. No conflicts with the CDCA Plan would occur.

The portion of Alternative B southeast of SR-177 (approximately 5 miles) would be within designated utility corridor "K," but the remainder of the DHSP gen-tie line route would cross BLM lands outside of utility corridor "K." As explained in Chapter 2, the CDCA Plan would be amended to authorize those portions of the Alternative B gen-tie line route across BLM-managed lands outside of utility corridor "K." A large portion of Alternative B would be located within or adjacent to the existing Riverside County ROW for Kaiser Road where the underlying management is BLM, except for one parcel of land owned by MWD and one Riverside County fee-owned parcel. According to Riverside County Code Section 17.284.020 excavation in, construction in, and installation of improvements or structures in the Riverside County ROW is permitted only upon the issuance of an encroachment permit. The Applicant will apply to the County of Riverside Transportation Department for an encroachment permit for Alternative B in accordance with Chapter 17.284 of the Riverside County Code. The Applicant would also enter into a land license agreement, lease, or permanent easement with MWD for the portions of land owned in fee by MWD, and would rely on this EIS to satisfy the CEQA obligations of MWD.

An 845-foot (0.2-mile) portion of Alternative B would traverse the FERC withdrawal area west of Kaiser Road. Only 145 feet of this overlap would occur on public lands owned by the BLM and withdrawn under the FPA; the remainder of the overlap would occur on private land owned by the MWD. Implementation of MM LR-2 would ensure that no impacts to the withdrawal holder under the FPA would occur.

A 0.6-mile portion of Alternative B would traverse one private parcel designated by the County's General Plan as Open-Space Rural (OS-RUR) and zoned Natural Assets (N-A). The OS-RUR designation allows limited development. Alternative B would comply with the development policies of the OS-RUR designation because it would be constructed with building materials such as

steel poles that rust to blend into the natural landscape, and would generally track existing power lines and power line ROW. Utility substations are permitted in the N-A zone subject to the issuance of a plot plan. The County's Code also permits public utility uses within any zoning classification subject to the issuance of a public use permit.

Alternative B would be located within the Riverside East SEZ of the Solar Energy Development Programmatic EIS. As described above for Alternative 4, the Solar Energy Development Programmatic EIS does not describe any specific development in the vicinity of Alternative B, but is intended to plan for future solar development in the area. Therefore, Alternative B would not conflict with any planned uses in the Solar Energy Development Programmatic EIS and would be consistent with planned uses described therein.

Habitat Conservation Areas. Alternative B would traverse the Chuckwalla DWMA and CHU to reach the Red Bluff Substation, which would result in temporary and permanent land disturbance. The NECO Plan allows for development in 1 percent of the DWMA. The BLM-administered portion of the DWMA is approximately 465,287 acres in size; therefore, the development of Alternative B would represent a negligible percentage (0.008 percent) of the allowable development within the DWMA. The exact acreage disturbed and a discussion of effects to habitat and wildlife are described in Sections 4.3 (Biological Resources – Vegetation) and 4.4 (Biological Resources – Wildlife).

As described above for Alternative 4, compliance with the CDFG's interim requirements is addressed in Sections 4.3 (Biological Resources – Vegetation) and 4.4 (Biological Resources – Wildlife) along with mitigation required to ensure compliance.

Agriculture. Alternative B would not affect any agricultural lands. The nearest agricultural lands are approximately 1,000 feet west of Alternative B.

Indirect Effects

Construction effects associated with Alternative B would not result in substantial changes to population growth or density that would affect lands and realty or agriculture. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

Operation and Maintenance

The direct and indirect effects to land and realty resources resulting from the operation and maintenance of Alternative B would be reduced compared to those discussed under construction of Alternative B. Some land that would be affected by construction, such as staging areas, would not be affected during operation and maintenance, resulting in a reduced footprint. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

Decommissioning

Direct Effects

Existing and Planned Land Uses. Decommissioning of Alternative B would affect a footprint similar to that of construction. When decommissioning is complete, 92 acres of land would be restored and would be available for other uses. Decommissioning would require coordination similar to that performed during construction where Alternative B overlapped existing uses (including roads and transmission lines). Once decommissioning is complete, Alternative B would no longer overlap these uses.

Habitat Conservation Areas. Decommissioning Alternative B would initially result in additional disturbance to the Chuckwalla DWMA and CHU where Alternative B overlaps these habitat conservation areas. The NECO Plan allows for development in 1 percent of the DWMA. The amount of land disturbed would be much less than the 1 percent allowed by the NECO Plan and the disturbance would be limited to the duration of decommissioning activities. When decommissioning is complete, these lands would be restored and could once again be used as a habitat conservation area.

The other effects resulting from decommissioning Alternative B (i.e., effects to land use plans, policies or regulations, and agricultural lands) would be the same as those described under decommissioning of Alternative 4.

Indirect Effects

Decommissioning of Alternative B would not result in substantial changes to population growth or density that would affect lands and realty or agriculture. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

Mitigation Measures

Construction, operation and maintenance, and decommissioning of the project would not result in substantial adverse direct or indirect effects to lands and realty such that mitigation measures are required. No mitigation measures are proposed.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of the project would not result in any unavoidable adverse effects.

4.11.12 Alternative C – Separate Transmission Towers within Same ROW

Alternative C would be built in the same ROW and follow the same path as Alternative B, but would construct new transmission infrastructure rather than sharing the DSSF infrastructure. The Alternative C ROW would extend west of the approved DSSF gen-tie ROW, 60 feet into the adjacent Chuckwalla DWMA to accommodate intermittent wind sway of overhanging conductors. No planned temporary or permanent ground disturbance would occur within the DWMA; ground disturbance in the DWMA would occur only during emergency maintenance.

Because the baseline for the proposed project does not include any of the proposed construction for the DSSF gen-tie line, the direct and indirect effects of constructing, operating and maintaining, and decommissioning Alternative C would be substantially similar to effects described under Alternative B. However, Alternative C would cross the DSSF transmission line, an existing encumbrance on BLM land. Because Alternative C would be subject to the previously existing ROW, Mitigation Measure LR-1 (Prior ROW Coordination Plan) is required to minimize impacts to prior ROW holders as required by the BLM.

Alternative C would extend into the Chuckwalla DWMA. Although no temporary or permanent ground disturbance is planned in the DWMA, ground disturbance would potentially occur during emergency maintenance. Mitigation Measure VEG-6 would reduce any adverse effects to the DWMA, see Section 4.17, Special Designations.

No conflicts with the CDCA Plan or NECO Plan would occur. Alternative C would cross the existing Desert Sunlight ROW. Because Alternative 4 would be subject to the previously existing ROW or other uses, Mitigation Measure LR-1 (Prior ROW Coordination Plan) is required to minimize impacts to prior ROW holders as required by the BLM. No conflicts with BLM or Riverside County land use requirements would occur.

Mitigation Measures

The measure identified for Alternative 4 would also be implemented under Alternative C.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative C would not result in any unavoidable adverse effects.

4.11.13 Alternative D – Cross-Valley Alignment

Construction

Direct Effects

Existing and Planned Land Uses. Construction of Alternative D would develop 86 acres of generally undeveloped multiple use BLM-administered land as a transmission line ROW. Alternative D would cross the following existing authorized uses described in Table 3.11-2:

- MWD ROW for canals and ditches;
- FERC Withdrawal for transmission and water supply;
- One existing 161-kV SCE transmission line;
- I-10, which is under the jurisdiction of Caltrans; and
- Underground telephone cable owned by Sprint.

In addition, Alternative D would cross the following existing authorized uses described in Table 3.11-2:

- SR-177, which is under the jurisdiction of Caltrans.

Effects from road crossings would be temporary and limited to short-term traffic disturbance during wire stringing. Towers would be sited to maintain access and required buffers for the

MWD ROW and the underground telephone cable; however, temporary disturbance could occur. The transmission lines could require minor design or siting modification.

The Eagle Mountain Pumped Storage Project's staff alternative double-circuit 500 kV transmission line would follow the same SCE transmission ROW as Alternative D. The Eagle Mountain Pumped Storage Project requested use of a 200-foot ROW for the transmission line (SWRCB 2010). The existing 161-kV SCE transmission line is located in a 100-foot ROW, with an additional 20-foot ROW immediately adjacent to this ROW (BLM 2011). Because Alternative D would be subject to the previously existing ROW or other uses, Mitigation Measures LR-1 (Prior ROW Coordination Plan) and LR-2 (FERC ROW Compatibility) are required to minimize impacts to prior ROW holders as required by the BLM.

Applicable Land Use Plans, Policies, or Regulations. Construction of Alternative D would also cross 5.1 miles of private land. Approximately 1.5 miles of the private land is zoned A-1-20, Agricultural. Public utility facilities are permitted in the A-1 zone subject to the approval of a permit and plot plan by Riverside County (Riverside County 2009). The remainder is zoned W-2-10, Controlled Development Zone. Transmission lines are allowed in W-2-10 zones when approved by Riverside County. Structure heights within the A-1 and W-2-10 zones may exceed 50 feet subject to the issuance of a variance by Riverside County (Riverside County 2009). With these approvals, conflicts with Riverside County land use requirements would not occur.

The remainder of Alternative D would be on BLM-administered land. The majority of the land is designated as Multiple Use Class M (Moderate Use) by the CDCA Plan. A short section south of I-10 and north of the Red Bluff Substation would be on land designated Multiple Use Class L (Limited Use). Electrical transmission and distribution facilities may be allowed on both Moderate and Limited Use land within designated utility corridors after NEPA requirements are met and a plan amendment is approved.

The majority of Alternative D, approximately 3.9 miles, would be on BLM-administered land that is not within a designated utility corridor. Approximately 1 mile of Alternative D north of Red Bluff Substation would be within designated utility corridor K. As explained in Chapter 2, the CDCA Plan would be amended to authorize those portions of the Alternative D gen-tie line route across BLM-managed lands outside of utility corridor "K." Conflicts with the CDCA Plan would thus not occur.

Alternative D would be located within the Riverside East SEZ of the Solar Energy Development Programmatic EIS. As described above for Alternative 4, the Solar Energy Development Programmatic EIS does not describe any specific development in the vicinity of Alternative D but is intended to plan for future solar development in the area, Alternative D would not conflict with any planned uses in the Solar Energy Development Programmatic EIS and would be consistent with planned uses described therein.

Habitat Conservation Areas. The southern tip of Alternative D would traverse the Chuckwalla DWMA and CHU, which would result in temporary and permanent land disturbance. The total acreage disturbed represents less than 0.0001 percent, significantly less than the 1 percent that may be developed according to the NECO Plan. Temporary and permanent effects to habitat and desert wildlife would occur as described in Sections 4.3 (Biological Resources – Wildlife) and 4.4 (Biological Resources – Vegetation).

Agriculture. Alternative D would cross approximately 1.5 miles of private agricultural land located within Riverside County. The County of Riverside General Plan (2003) has not identified any area within the Desert Center Planning Area, which includes the Alternative D ROW, as Prime Farmland soils. However, Riverside County has identified soils in one component of the Alternative D ROW where it crosses Rice Road, as Williamson Act Non-Prime Agricultural Land (California Department of Conservation, Division of Land Resources Protection 2007). Most non-prime lands are in agricultural uses, such as grazing or non-irrigated crops. Non-prime lands may also include other open space uses that are compatible with agriculture and consistent with local general plans (California Department of Conservation, Division of Land Resources Protection 2007). Although soils associated with the Alternative D ROW have not been surveyed by the NRCS, the geotechnical survey of the site suggests that the soils found on the Alternative B area were essentially uniform in nature and primarily sandy in texture, similar to the soils found in the agriculture lands adjacent to Rice Road (BLM 2011).

The construction of Alternative D would not result in a substantial adverse effect because transmission lines are generally consistent with agricultural uses. While a portion of the Alternative D ROW is enrolled in a Williamson Act contract, open space uses consistent with local plans and regulations, such as transmission lines, would not result in a substantial adverse effect. The agricultural preserves are zoned A-1-20, which allows public utilities subject to permit and approval by the County. Soils associated with the preserves have not been identified as Prime Farmland. No adverse effect to Prime Farmland soils would occur from the construction of Alternative D.

Indirect Effects

Construction effects associated with Alternative D would not result in substantial changes to population growth or density that would affect lands and realty or agriculture. Indirect effects associated with ecosystems, such as impacts to the functionality of land outside the project area in the WHMA or DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

Operation and Maintenance

The direct and indirect effects to land and realty resources resulting from the operation and maintenance of Alternative D would not be any different from the impacts related to the construction of Alternative D. Some land that would be affected during construction, such as staging areas, would not be affected during operation and maintenance, resulting in a reduced footprint. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the WHMA or DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

Decommissioning

Direct Effects

Existing and Planned Land Uses. Decommissioning would affect a footprint similar to that during construction. When complete, decommissioning of Alternative D would result in restoration of 86 acres of land, making the land available for other uses. Decommissioning would require coordination similar to that performed during construction where Alternative D over-

lapped existing uses (including agricultural land, roads, and transmission lines). Once decommissioning was completed, Alternative D would no longer overlap these uses.

Applicable Land Use Plans, Policies, or Regulations. Land use plans, policies, or regulations may have changed by the time Alternative D would be decommissioned. A decommissioning plan would be created to ensure that decommissioning was conducted in accordance with then-current land use plans, policies, or regulations.

Habitat Conservation Areas. Decommissioning Alternative D would initially result in additional disturbance to the Chuckwalla DWMA and CHU where Alternative D overlaps these habitat conservation areas. However, the amount of land disturbed would be much less than the 1 percent allowed by the NECO Plan, and the disturbance would be limited to the duration of decommissioning activities. When decommissioning was complete, these lands would be restored and could once again be used as a habitat conservation area.

Agriculture. Decommissioning Alternative D would result in effects similar to construction on Alternative D; however, once decommissioning was completed, Alternative D would no longer overlap agricultural land.

Indirect Effects

Decommissioning of Alternative D would not result in substantial changes to population growth or density that would affect lands and realty or agriculture. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the WHMA or DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

Mitigation Measures

The measure identified for Alternative 4 would also be implemented under Alternative D.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative D would not result in any unavoidable adverse effects.

4.11.14 Alternative E – New Cross-Valley Alignment

Construction

Direct Effects

Existing and Planned Land Uses. Construction of Alternative E would develop 85 acres of generally undeveloped multiple use BLM-administered land as a transmission line ROW. Alternative E would cross the following existing authorized uses described in Table 3.11-2:

- MWD ROW for canals and ditches;
- One SCE transmission lines;
- I-10, which is under the jurisdiction of Caltrans; and
- Underground telephone cable owned by Sprint.

In addition, Alternative E would overlap the following existing authorized uses described in Table 3.11-2:

- SR-177, which is under the jurisdiction of Caltrans.

Effects from road crossings would be temporary and limited to short-term traffic disturbance during wire stringing. Towers would be sited to avoid permanent effects to the MWD ROW and the underground telephone cable; however, temporary disturbance could occur. Because Alternative E would be subject to the previously existing ROW or other uses, Mitigation Measure LR-1 (Prior ROW Coordination Plan) is required to minimize impacts to prior ROW holders as required by the BLM.

Applicable Land Use Plans, Policies, or Regulations. Construction of Alternative E would also cross 4.25 miles of private land zoned W-2-10, Controlled Development Zone. Transmission lines are allowed in W-2-10 zones when approved by Riverside County. Structure heights within W-2-10 zones may exceed 50 feet subject to the issuance of a variance by Riverside County (Riverside County 2009). With these approvals, conflicts with Riverside County land use requirements would not occur.

The remainder of Alternative E would be on BLM-administered land. The majority of the land is designated as Multiple Use Class M (Moderate Use) by the CDCA Plan. A short section east of SR 177 and south of I-10 and north of the Red Bluff Substation would be on land designated Multiple Use Class L (Limited Use). Electrical transmission and distribution facilities may be allowed on both Moderate and Limited Use land within designated utility corridors after NEPA requirements are met and a plan amendment is approved. Construction of the portion of Alternative E that is on BLM-administered land but not within a utility corridor (5.4 miles) would require a CDCA Plan amendment.

The majority of Alternative E would not be within a designated utility corridor. Approximately 1 mile of Alternative E north of Red Bluff Substation would be within designated utility corridor K. As explained in Chapter 2, the CDCA Plan would be amended to authorize those portions of the Alternative E gen-tie line route across BLM-managed lands outside of utility corridor "K."

Alternative E would be located within the Riverside East SEZ of the Solar Energy Development Programmatic EIS. As described above for Alternative 4, the Solar Energy Development Programmatic EIS does not describe any specific development in the vicinity of Alternative E but is intended to plan for future solar development in the area. Therefore, Alternative E would not conflict with any planned uses in the Solar Energy Development Programmatic EIS and would be consistent with planned uses described therein.

Habitat Conservation Areas. The southern tip of Alternative E would traverse the Chuckwalla DWMA and CHU, which would result in temporary and permanent land disturbance. As with Alternative B, the total acreage disturbed represents less than 0.0001 percent, significantly less than the 1 percent that may be developed according to the NECO Plan. Temporary and permanent effects to habitat and desert wildlife would occur as described in Sections 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

Indirect Effects

Construction effects associated with Alternative E would not result in substantial changes to population growth or density that would affect lands and realty or agriculture. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the WHMA or DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

Operation and Maintenance

The direct and indirect effects to land and realty resources resulting from the operation and maintenance of Alternative E would not be any different from the impacts related to the construction of Alternative E. Some lands that would be affected during construction, such as staging areas, would not be affected during operation and maintenance, resulting in a reduced footprint.

Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the WHMA or DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

Decommissioning

Direct Effects

Existing and Planned Land Uses. Decommissioning would affect a footprint similar to that during construction. When complete, decommissioning of Alternative E would result in restoration of 85 acres of land, making the land available for other uses. Decommissioning would require coordination similar to that performed during construction where Alternative E overlapped existing uses (including agricultural land, roads, and transmission lines). Once decommissioning is completed, Alternative E would no longer overlap these uses.

Applicable Land Use Plans, Policies, or Regulations. Land use plans, policies, or regulations may have changed by the time Alternative E would be decommissioned. A decommissioning plan would be created to ensure that decommissioning was conducted in accordance with then-current land use plans, policies, or regulations.

Habitat Conservation Areas. Decommissioning Alternative E would initially result in additional disturbance to the Chuckwalla DWMA and CHU where Alternative E overlaps these habitat conservation areas. However, the amount of land disturbed would be much less than the 1 percent allowed by the NECO Plan, and the disturbance would be limited to the duration of decommissioning activities. When decommissioning was complete, these lands would be restored and could once again be used as a habitat conservation area.

Agriculture. Decommissioning Alternative E would result in effects similar to construction on Alternative E; however, once decommissioning was completed, Alternative E would no longer overlap agricultural land.

Indirect Effects

Decommissioning of Alternative E would not result in substantial changes to population growth or density that would affect lands and realty or agriculture. Indirect effects associated with ecosystems, such as effects to the functionality of land outside the project area in the WHMA or

DWMA are addressed in Section 4.3 (Biological Resources – Vegetation) and Section 4.4 (Biological Resources – Wildlife).

Mitigation Measures

The measure identified for Alternative 4 would also be implemented under Alternative E.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative E would not result in any unavoidable adverse effects.

4.11.15 Cumulative Effects

Geographic Scope

The geographic extent for the consideration of cumulative effects to lands and realty and agricultural resources is in eastern Riverside County and includes the projects described in Section 4.1.4 (Cumulative Scenario) Tables 4.1-1 and 4.1-2. An analysis of potential cumulative effects to land use and agricultural resources needs to cover a large area because current applications for development of renewable energy projects and other facilities could convert a very large acreage of undeveloped public and private land. Table 4.11-1 lists the existing and foreseeable projects that have the potential to combine with the DHSP to result in a cumulative effect.

Table 4.11-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Lands and Realty	Eastern Riverside County	Impacts to surrounding land and realty uses, conflicts with habitat conservation or natural community conservation plans, increase developed and industrial use	All projects listed in Tables 4.1-1 and 4.1-2. Large scale energy projects in the nearby vicinity include: • Desert Sunlight Solar Farm Project • Silverado Power Solar Project • Desert Center 50 Solar Project • Eagle Mountain Pumping Plant • Sol Orchard • Palen Solar Power Project

A large number of renewable projects have been proposed on BLM-administered land, state land, and private land in California, including the Desert Sunlight Solar Farm Project, Silverado Power Solar Project, Desert Center 50 Solar Project, Eagle Mountain Pumping Plant, Sol Orchard, and Palen Solar Power Project all within 10 miles of the proposed project. However, not all projects listed will complete the environmental review process, and not all projects will be funded and constructed. Therefore, it is unlikely that all of the projects would be constructed for the following reasons: (1) Not all developers will develop the detailed information necessary to meet BLM standards; (2) The large size of many projects may result in permitting challenges related to endangered species, mitigation measures or requirements, and other issues; and (3) After project approval, construction financing must be obtained (if it has not been obtained earlier in the process).

Cumulative Effects Analysis

Alternatives 1, 2, 3, and A. Alternatives 1, 2, and A would not have any project-level effects and would not contribute to cumulative adverse effects.

Alternative 4. Existing development near the project area includes those projects listed in Table 4.1-1 (Existing Projects in the I-10 Corridor). Within the I-10 corridor area used in this analysis, estimated at over 2,040,000 acres (see Table 4.1-2 – Foreseeable Projects Along the I-10 Corridor [Eastern Riverside County]), foreseeable projects could convert over 52,000 acres, or 2.5 percent, to new land uses. The proposed project would represent 1,208 acres, or 2.3 percent or the land converted and less than 0.1 percent of the I-10 corridor area. Three of the energy projects in Table 4.1-2 are in the vicinity of Alternative 4: Palen Solar Power Project, Desert Sunlight Solar Farm Project (currently under construction), and Eagle Mountain Pumped Storage Project. These projects would add large and small-scale industrial, utility-related and other uses in the region, resulting loss of access to lands that are currently managed for multiple-use by BLM. The DSSF is adjacent to the DHSP site, immediately to the north.

Past development has increased human use of land in the project area. However, because of the limited availability of water, human development in the project area has been limited to small scattered towns and cities and various isolated projects such as the mine and water pumping station, among large tracts of undeveloped land. Construction of multiple projects within the same area could create a substantial adverse cumulative effect to surrounding land and realty uses if the projects were built on or adjacent to areas with planned land and realty uses or with existing easements of ROW. The incremental contribution of Alternative 4 to cumulative effects would be small because of the size of the project and because no development is planned on the project site. Implementation of AM LU-1, which requires notification of all major project construction milestones to property owners within 300 feet of the project would ensure property owners are aware of the changes to the existing land use due to construction of the project.

While construction and operation effects of the projects included in the cumulative scenario would likely conflict with habitat conservation or natural community conservation plans, each project included in this cumulative analysis would be required under the HCPs and DRECP interim CDFG requirements to include mitigation for any effects. Similarly, it is not likely that cumulative construction effects would affect agricultural land or zoning, as agriculture in the project area is restricted by limited water supplies.

Operation of the foreseeable projects in the project study area would substantially increase developed and industrial use of land in the area. Given the size and diversity of these projects and the large acreage of currently undeveloped BLM-administered land in the project area, it is likely that several of these projects could conflict with existing or planned land uses or with applicable state or local land use plans and zoning designed to minimize environmental effects. Based on the scale of land use conversion (over 52,000 acres or 2.5 percent of the land along the I-10 corridor), cumulative effects would be considered substantially adverse. The incremental effect of Alternative 4 would represent a substantial portion (over 2 percent) of the land converted but would represent a change or less than 0.1 percent of the land along the I-10 corridor.

Alternative B. Alternative B would not contribute to cumulative air quality effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie

and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Alternatives 5, 6, and 7. In light of their similarities, the lands and realty cumulative effects for Alternatives 5 and 6 would be essentially the same as described for Alternative 4 and cumulative effects would be substantially adverse.

Alternatives C, D, and E. Existing development near Alternatives C, D, and E would be the same as for Alternative 4 and includes those projects listed in Table 4.1-1 (Existing Projects in the I-10 Corridor). Within the I-10 corridor area used in this analysis (see Table 4.1-2 – Foreseeable Projects Along the I-10 Corridor [Eastern Riverside County]), foreseeable projects could convert over 52,000 acres to new land uses. The DSSF is adjacent to the DHSP site, immediately to the north and the DSSF gen-tie line would parallel Alternative C.

Construction of multiple projects within the same area could create a substantial adverse cumulative effect to surrounding land and realty uses. The incremental contribution of Alternative C, D, and E to cumulative effects would be minimal because of the limited duration of construction and ground disturbance for the gen-tie line and would be reduced through implementation of AM LU-1, which requires property owners within 300 feet of the project to be notified of all major project construction milestones.

While construction and operation effects of the projects included in the cumulative scenario would likely conflict with habitat conservation or natural community conservation plans, each project included in this cumulative analysis would be required under the HCPs and DRECP interim CDFG requirements to include mitigation for any effects. Similarly, it is not likely that cumulative construction effects would affect agricultural land or zoning, as agriculture in the project area is restricted by limited water supplies and the gen-tie lines would not require large amounts of ground disturbance nor would they require use of land used for agriculture.

Operation of the foreseeable projects in the project area would substantially increase developed and industrial use of land in the area. Given the size and diversity of these projects and the large acreage of currently undeveloped BLM-administered land in the project area, it is likely that several of these projects could conflict with existing or planned land uses or with applicable state or local land use plans and zoning designed to minimize environmental effects. Although the scale of land use conversion is considerable, the incremental effect of Alternatives C, D, and E would represent a minor portion (less than 0.5 percent) of the land converted in the project study area and would not be substantially adverse.

4.11.16 CEQA Considerations

CEQA Significance Criteria

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. Under CEQA, the proposed project and alternatives would have significant impact on lands, realty, or agriculture if they would:

LU-1 Conflict with existing or planned land uses on or around the site;

LU-2 Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific

plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;

LU-3 Conflict with any applicable habitat conservation plan (HCP) or natural community conservation plan;

LU-4 Conflict with existing zoning for agricultural use, and/or a Williamson Act contract; or

LU-5 Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use.

For the proposed project and alternatives, the following CEQA criteria were determined to be inapplicable or to result in no impact under all alternatives. The determination regarding these significance criteria is discussed below, and these criteria are not discussed further in this section.

- Physically divide an established community:

  The proposed project and alternatives would not physically divide an established community; therefore, there would be no impact. Although there is some residential development in the project area, the proposed project and alternatives would not divide this development.

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency and the United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey, to non-agricultural uses:

  There is no FMMP-designated Prime or Unique Farmland or Farmland of Statewide Importance in the project area; therefore, there would be no impact.

- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g]):

  The proposed project and alternatives would not be located on any forest or timberland; therefore, there would be no impact.

- Result in the loss of forest land or conversion of forest land to non-forest use:

  The proposed project and alternatives would not be located on any forest land; therefore, there would be no impact.

CEQA Significance Determination

Alternatives 1, 2, 3, and A would not have any impacts related to land use, realty, or agriculture. Under these alternatives the DHSP and gen-tie lines would not be approved and would not be constructed. Lands would remain in their existing use.

Alternative 4. The proposed solar layouts would develop 1,208 acres of BLM-administered multiple use land for solar energy production, precluding other uses of this land for the duration of the project. However, because the land is generally undeveloped, no specific planned land

uses have been identified, and only a small percentage of the existing undeveloped land would be affected.

Alternative 4 would overlap several existing uses including roads and transmission lines; however, by implementing AM LU-1, impacts would be reduced. Impacts to the WHMA would be minimal given the small size, unusual shape, and low connectivity of the overlapping WHMA area under Alternative 4, and implementation of mitigation measures for biological resources would mitigate these impacts. Mitigation Measure VEG-6 (Provide Off-Site Compensation for Impacts to Vegetation and Habitat) and MM WIL-9 (Pro-Rated Contribution to the Desert Tortoise Population Connectivity Effectiveness Monitoring Plan) would offset project impacts to wildlife movement, including desert tortoise population connectivity, in the upper Chuckwalla Valley. MM VEG-6 incorporates the requirement that "The primary focus area for acquiring parcels to maintain/improve connectivity will be along the I-10 corridor between Desert Center and Cactus City with a priority on parcels that connect conserved lands on either side of the I-10 through large culverts or bridges; the habitat compensation ratio for mitigation lands along the I-10 corridor shall be 1:1 for each acre of total long-term and permanent disturbance." MM WIL-9 would require the project owner to contribute on a pro-rated basis to funding the Desert Tortoise Population Connectivity Effectiveness Monitoring Plan conservation measure described in the Desert Sunlight Biological Opinion. With these measures impacts related to existing and planned uses (criterion LU-1) would be less than significant.

There would be no impact for Criterion LU-3 because the alternatives would not overlap any HCPs.

There would be no impact under LU-2, LU-4 and LU-5. With regard to LU-2, the project/Alternative 4 would be compatible with the relevant land use classifications. With regard to LU-4 and LU-5, there would be no impact because the DHSP site would not overlap any agricultural lands.

Decommissioning impacts are not applicable to LU-1, LU-4 and LU-5. LU-1 is not applicable because conflicting uses would not be allowed while the site was in use for solar energy generation. BLM's NEPA process would ensure compatibility of future uses with existing land uses in the project area. Decommissioning would present an opportunity for the land to be used for other purposes and remove overlaps with existing uses such as roads and transmission lines. LU-4 and LU-5 are not applicable, as there is no existing agricultural land on the project site, nor would any be designated while the site was in use as a solar project. There would be no impact under LU-2 because the land would be restored to a state compatible with the CDCA Plan or future applicable land use plans, policies, or regulations. There would be no impact under LU-3 because the alternatives would not overlap any HCPs.

As described in Section 4.11.15, the effects of Alternative 4, when considered with existing and proposed projects in the area, could present a cumulatively considerable impact on lands and realty. However, implementation of AM LU-1 would minimize the project's contribution to these potential impacts to less than considerable.

Alternative 5. Impacts from Alternative 5 would be the same as those under Alternative 4, but with impacts to the WHMA eliminated.

Alternative 6. Impacts from Alternative 6 would be the same as those under Alternative 4, but slightly reduced by the smaller project footprint.

Alternative 7. Impacts from Alternative 7 would be the same as those under Alternative 4, but slightly reduced by the smaller project footprint.

Alternative B. Impacts from the Alternative B gen-tie line would be less than significant for criterion LU-1. There would be no impact under LU-2, LU-4, and LU-5.

With regard to LU-1, although development of Alternative B would preclude other uses of the land, because the land is currently undeveloped and no specific planned land uses have been identified, impacts would be less than significant. In addition, Alternative C would overlap several existing uses including roads and transmission lines; however, by implementing AM LU-1, impacts would be further reduced.

With regard to LU-2, there would be no impact because Alternative B would be compatible with the relevant land use classifications. With regard to LU-4 and LU-5, there would be no impact because Alternative B would not overlap any agricultural lands. Construction impacts would be less than significant for criterion LU-3. Although lands in the Chuckwalla DWMA and CHU would be temporarily and permanently disturbed by construction of Alternative B, the lands disturbed would be much less than the 1 percent allowed by the NECO Plan.

Decommissioning impacts are not applicable to LU-1, LU-4, and LU-5. There would also be no impact under LU-2. This is because conflicting uses would not be allowed while the site was in use for the gen-tie line, and because decommissioning would present an opportunity for the land to be used for other purposes and remove overlaps with existing uses such as roads and transmission lines. For LU-3, initial impacts would be less than significant as decommissioning activities would temporarily disturb additional land in the Chuckwalla DWMA and CHU similar to what occurred during construction. However, when decommissioning was complete, beneficial impacts would result because this land would be restored.

Alternative B would be built on the reasonably foreseeable DSSF gen-tie towers and would not require additional permanent ground disturbance or additional work crews for conductor stringing. As such, it would not contribute to cumulative impacts to lands and realty.

Alternative C. Project-level impacts from the Alternative C gen-tie line would be similar to those of Alternative B.

As described in Section 4.11.15, the effects of Alternative C, when considered with existing and proposed projects in the area, could present a cumulatively significant impact on lands and realty. However, implementation of AM LU-1 would minimize the project's contribution to these potential impacts to less than considerable.

Alternative D. Construction impacts would be less than significant for criterion LU-1. There would be no impact under LU-2, LU-4, and LU-5.

With regard to LU-1, although development of Alternative D would preclude other uses of the land, because the land is currently undeveloped and no specific planned land uses have been identified, impacts would be less than significant. In addition, Alternative D would overlap several existing uses including roads and transmission lines; however, by implementing AM LU-1, impacts would be reduced. With regard to LU-2, there would be no impact because Alternative D would be compatible with the relevant land use classifications. With regards to LU-4 and LU-5, there would be less-than-significant impacts.

Although Alternative D would cross farmland protected as Non-Prime under the Williamson Act, transmission lines are consistent with farmland use. The farmlands crossed are currently zoned A-1-20, which permits use by utilities with county permit and approval.

Impacts would be less than significant for criterion LU-3. Although lands in the Chuckwalla DWMA and CHU would be temporarily and permanently disturbed by construction of Alternative D, the lands disturbed would be much less than the 1 percent allowed by the NECO Plan.

Decommissioning impacts are not applicable to LU-1, LU-4 and LU-5. There would be no impact under LU-2. LU-1 is not applicable because conflicting uses would not be allowed while the site was in use as Alternative D. BLM's NEPA process would ensure compatibility of future uses with existing land uses in the project area. Decommissioning would present an opportunity for the land to be used for other purposes and remove overlaps with existing uses such as roads and transmission lines. Impacts related to LU-4 and LU-5 would be less than significant. While decommissioning would occur on agricultural land protected as Non-Prime by the Williamson Act, utility activities are consistent with this land use and permitted by zoning. With regard to LU-2, there would be no impact because the land would be restored to a state compatible with the CDCA Plan or future applicable land use plans, policies, or regulations. For LU-3, initial impacts would be less than significant as decommissioning activities would temporarily disturb additional land in the Chuckwalla DWMA and CHU similar to what occurred during construction. However, when decommissioning was complete, beneficial impacts would result because this land would be restored and could again be used as a habitat conservation area.

As described in Section 4.11.15, the effects of Alternative D, when considered with existing and proposed projects in the area, could present a cumulatively significant impact on lands and realty. However, implementation of AM LU-1 would minimize the project's contribution to these potential impacts to less than considerable.

Alternative E. Because of its proximity to Alternative D, impacts resulting from Alternative E would be similar. Alternative E does not overlap agricultural land uses, however. Impacts from this alternative would be less than significant, with no mitigation required.

4.12 NOISE AND VIBRATION

4.12.1 Methodology for Analysis

Noise and vibration impacts associated with the Desert Harvest Solar Project (DHSP) and alternatives were identified by independent evaluation of various project-related components capable of producing noise and vibration related effects. The identified issues include:

- Noise from on-site construction activity at the solar panel field site (including the project substation), and along the transmission line corridor;
- Noise from construction-related vehicle traffic;
- Noise from facility operations; and
- Vibration impacts from on-site construction activity.

Noise impacts to wildlife are addressed in Section 4.3, Biological Resources – Vegetation.

Analysis of these issues was performed through quantitative analysis of expected noise levels, review of agency policies and regulatory requirements, and qualitative analyses for issues that did not lend themselves to quantitative evaluation. Quantitative analyses were prepared to address noise and vibration from construction equipment operations, noise from construction-related traffic, and noise from facility operations. Much of the analysis contained herein relies upon the analysis contained in the *Desert Sunlight Solar Farm Project Final EIS and CDCD Plan Amendment* (2011; incorporated by reference in Section 1.11), as this project is located immediately north of the Desert Harvest Solar Project (DHSP) solar facility site, would utilize the same type of solar panels (photovoltaic), and includes the installation of a gen-tie line and on-site substation (6.3 acres), similar to the proposed project. Additional details regarding effects assessment methodologies are discussed under relevant impact topics.

The area of interest for noise and vibration issues is typically localized. Airborne noise dissipates fairly rapidly with increasing distance from the noise source. The distances involved depend primarily on the intensity of the noise generated by the source, and partly on weather conditions such as wind speed and direction, the height and strength of temperature inversions, and the height of cloud cover. Sound is detectable somewhat further downwind than upwind of a noise source. Temperature inversions and cloud cover can reflect or refract sound that is radiated upwards; this effect can increase noise levels at locations that receive the reflected or refracted sound. Such reflection and refraction effects are important primarily for high intensity sounds. For noise sources such as construction activity and vehicle traffic, the region of influence is typically less than 0.25 mile from the noise source.

Ground-borne vibrations typically dissipate rapidly with increasing distance from the vibration source. The distances involved depend primarily on the intensity of the vibrations generated by the source, and partly on soil and geologic conditions. Detectable vibrations will travel the greatest distance through solid rock and the least distance through loose, unconsolidated soils or saturated soils. For vibration sources such as construction activity and vehicle traffic, the region of influence is typically less than 1,000 feet from the vibration source.

Table 4.12-1 compares the distances of the closest existing residences to action alternative features. One home site is located 1,320 feet (0.25 miles) from the property line of the solar facility

site; however, this site is not currently in use. In addition, the closest area of the JTNP is 1.8 miles (9,400 feet) northeast of the solar facility site.

Table 4.12-1. Comparison of Distances of the Closest Residences to the Project Features

Project Component	Distance to Closest Existing Residence	Substation
Alternative 4 – Proposed Solar Project	6,500 feet	No nearby residences
Alternative 5 – Solar Project Excluding WHMA	6,500 feet	No nearby residences
Alternative 6 – Reduced Footprint Solar Project (excludes WHMA and SW site)	6,500 feet	No nearby residences
Alternative B – Proposed Gen-Tie (Shared Towers)	500 feet	No nearby residences
Alternative C – Separate Transmission Towers within Same ROW	500 feet	No nearby residences
Alternative D – Cross-Valley Alignment	1,450 feet	No nearby residences
Alternative E – New Cross-Valley Alignment	900 feet	No nearby residences

Source: Google Earth 2011.

4.12.2 Applicant Measures

The following Applicant Measure (AM) has been incorporated as a design feature of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project. In some cases, mitigation measures further clarify or expand on AM reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures imposed and the following AM, the mitigation measures take precedence.

AM N-1 **Construction Schedule**. Most construction activity will be limited to daytime hours consistent with Riverside County noise ordinance limitations. Certain electrical connection activities at the solar project site would occur at night for safety reasons, but would not require any heavy equipment operations.

4.12.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

As a result, no noise impacts related to the DHSP would occur.

4.12.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site, and BLM would manage the site consistent with the amended land use designation in the CDCA Plan. It is possible, as a result of the CDCA Plan amendment, that in the future another solar energy generation project could be proposed with impacts similar to the DHSP, however, such impacts are speculative at this time, and no effects from the DHSP would occur.

4.12.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.12.6 Alternative 4 – Proposed Solar Project

Effects on the existing ambient noise and vibration levels may arise from project construction, operations and maintenance, and decommissioning equipment and vehicles as well as from the introduction of construction or operations and maintenance-related traffic on local roads near the proposed solar facility site.

Construction

Construction of Phase 1 is expected to begin in April 2013 and continue to July 2013 (3 months). Construction of Phase 2 (137 MW) is expected to begin in September 2013 and continue to November 2014 (14 months). Construction of Phase 3 (13 MW) would begin in November 2014 and continue to May 2015 (6 months) (24 months total for Phases 1, 2 and 3). The on-site workforce during construction is expected to be as high as 250 workers at the peak of construction, with an estimated average workforce of 100 workers. Construction would generally occur 2 hours before sunrise and 2 hours after sunset, Monday through Friday. Additional hours may be necessary to correct schedule deficiencies or to complete critical construction activities, and during the startup phase of the project, some activities may be performed over the weekend or at night depending on safety requirements. An estimated 4,425 truck roundtrips would be required throughout construction to deliver equipment and materials, with an estimated maximum of 46 deliveries per day (heavy-duty truck roundtrips) for the solar facility site. It is anticipated that material deliveries for the solar facility would maintain a constant flow over the 24-month construction period (Phases 1, 2, and 3).

Site preparation would consist of removal of vegetation within the project area by scarification, where necessary. Preparation would likely proceed by section, so that only the portion of the solar facility site where panels are about to be laid out over a period of 6 months would be scarified at one time. Site grading would be limited to the major access roads, inverter pad locations, and the ancillary facilities, including the parking area, O&M building, and switchyard. Grading would also be completed if the slope is greater than 1 percent at the set-back boundaries of defined intermittent streams to reduce the slope and make continuous with the solar panel area. After the site is prepared and graded, the panel field would be laid out. The panel field would consist of solar panels arranged on either fixed-tilt or tracking frames in long rows. The uprights for the frame would either be driven into the ground by means of a small pile-driver or supported by pre-poured concrete foundations (ballasts) on the surface of the soil, depending on soil studies and engineering design. Inverters and transformers would be located throughout the solar facility, and connect to the project substation and switchyard via underground trenching. The project substation, O&M building, and parking/storage area would cover 5.2 acres in the northwest corner of the solar facility site; however, for Alternative E (New Cross-Valley Alignment) the substation would be located in the southern-middle portion of the site.

Temporary construction buildings, including three to four trailer offices would be placed along the western border of the project area near the entrance gate along with portable latrines. A small laydown area to accommodate delivery of materials, vehicles, etc. would be located adjacent and north of the substation. Additional parking and delivery of construction materials would utilize the future substation footprint, prior to its construction. Temporary staging areas would be located throughout the project area, and would be used until their area was overcome by the build-out of the panel array.

The project site would be accessed from I-10, utilizing the on-ramp/off-ramp of Rice Road (SR-177), and heading north on the existing Kaiser Road along the western boundary of the project area to a new facility access road to be located in the northwest corner of the project site. New unpaved roads would be constructed to serve as access roads from the existing road network to the facilities and photovoltaic field.

Direct Effects

Solar Facility Construction (Includes On-Site Substation)

Noise from On-Site Construction Activities. Noise generated from on-site construction activities would be similar to the estimated noise levels for the various construction phases determined for the Desert Sunlight Solar Farm Project, as this project also includes the installation of PV arrays and an on-site substation. The Desert Sunlight Solar Farm Project, however, is substantially larger than the DHSP, as it covers over 4,000 acres and includes installation of PV arrays to provide an annual generation capacity of 550 MW, all within a similar construction timeframe as the DHSP (26 months vs. 24 months for DHSP). The DHSP solar facility would cover just over 1,200 acres and would install PV arrays to provide an annual generation capacity of 150 MW in a 24-month timeframe. The project would cover about one-third the area (30 percent) and would install just over one-fourth (27 percent) of the generation capacity (i.e., number of PV arrays) compared to the Desert Sunlight Solar Farm Project. This means that less-intense construction activity and fewer construction crews would be required for the DHSP, the distance between crews working on the site may be greater, and/or there may be fewer overlapping activities. However, since construction activities are generally spread throughout the site, having multiple activities going on simultaneously (i.e., greater intensity) does not necessarily result in different noise levels at a given location, as the construction activity closest to an off-site receptor would generally dominate the noise environment with minimal, if any, additive noise from other activities going on in other areas located farther away. Therefore, the difference in intensity between the DHSP and the Desert Sunlight Solar Farm Project would not necessarily result in greater or lesser noise levels for off-site receptors. Additionally, similar construction equipment would be utilized for each of these projects, including pile driver, loader, dozer, grader, forklift, backhoe, trencher, roller, and plow. Therefore, the estimated construction noise levels for the various phases of on-site construction estimated for the Desert Sunlight Solar Farm Project provide a representative estimate of the noise levels that would be generated by the DHSP.

As noted above, DHSP solar facility development would occur over a 24-month period, and would occur in phases. Construction of Phases 1 and 2 would include site grading and preparation of a portion of the site, construction of the O&M building and on-site roads, on-site well, on-site substation and switchyard, and assembly and installation of panel blocks and wiring. Con-

struction of Phase 3 would include additional grading and preparation, assembly and installation of panel blocks and wiring, and construction of the on-site settling ponds. Construction activity would generally occur over a standard five-day workweek (Monday-Friday) with activity limited to daytime hours when located near inhabited dwellings pursuant to Mitigation Measure NOI-1 and consistent with the Riverside County noise ordinance (beginning at 7:00 a.m. during most of the year, and perhaps starting as early as 6:00 a.m. during the summer months, and ending no later than 6:00 p.m.). For safety reasons, some electrical connection activity would typically occur at night when the solar panels are not energized, but this activity would not require any significant heavy equipment operations.

Construction noise was modeled for the following construction sub-phases:

- Vegetation clearing;
- Site grading;
- Installation of array support posts;
- Trenching and underground power cable installation; and
- Soil compacting and dust palliative application.

Other construction activity sub-phases would be expected to generate lower noise levels than these phases. In most cases, equipment used during a construction sub-phase would be distributed in groups of items in different portions of the active construction area. Not all equipment items would operate concurrently, but several items of equipment would typically be active over a construction day. Equipment items that would typically be operating in proximity were identified and used in the construction noise analyses. Table 4.12-2 summarizes the construction noise analysis results for the five sub-phases with the greatest potential for noise generation during solar facility site construction.

Table 4.12-2. Summary of Construction Noise for the Solar Facility Site

Construction Phase	Typical Equipment	Distance from Construction (feet)	Maximum 1-Hour Leq Increment (dBA)	Average Daytime Leq Increment (dBA)	CNEL Increment (dBA)
Vegetation Clearing	Brush Cutters, Tracked Dozer, Wheeled Tractor, Wheeled Loader, Wood Chipper, ATVs, Water Truck, Dump Truck	100	80.6	77.1	74.1
		400	67.9	64.5	61.5
		700	62.4	59.0	55.9
		1,000	58.7	55.2	52.2
		1,500	54.1	50.6	47.6
		2,500	47.5	44.0	41.0
Site Grading	Scraper, Tracked Dozer, Grader, Roller-Compactor, ATVs, Water Truck	100	81.3	78.9	75.9
		400	68.6	66.2	63.2
		700	63.1	60.7	57.7
		1,000	59.3	57.0	54.0
		1,500	54.7	52.4	49.3
		2,500	48.0	45.7	42.7
Array Post Installation	Auger Rig, Vibratory Pile Driver, Forklift, ATVs, Water	100	83.2	81.3	78.3
		400	70.7	68.8	65.8

Table 4.12-2. Summary of Construction Noise for the Solar Facility Site

Construction Phase	Typical Equipment	Distance from Construction (feet)	Maximum 1-Hour Leq Increment (dBA)	Average Daytime Leq Increment (dBA)	CNEL Increment (dBA)
	Truck, Flatbed Truck	700	65.3	63.5	60.5
		1,000	61.7	59.9	56.9
		1,500	57.4	55.5	52.5
		2,500	51.3	49.4	46.4
Trenching and Underground Cable Installation	Trencher, Backhoe-Loader, Cable Plow, Forklift, ATVs, Flatbed Truck, Dump Truck, Water Truck	100	75.7	72.6	69.6
		400	63.2	60.1	57.1
		700	57.8	54.7	51.7
		1,000	54.2	51.1	48.1
		1,500	49.9	46.7	43.7
		2,500	43.9	40.6	37.6
Soil Compaction and Dust Palliative Application	Roller-Compactors, ATVs, Water Truck	100	74.8	72.2	69.1
		400	62.3	59.7	56.7
		700	57.1	54.5	51.4
		1,000	53.5	50.9	47.9
		1,500	49.3	46.7	43.7
		2,500	43.5	40.9	37.9

Leq = equivalent continuous noise level
CNEL = community noise equivalent level (a 24-hour weighted average)
Source: BLM 2011 – Table 4.10-2.

There are a few scattered rural residences within 1.5 miles of the proposed solar facility site (refer to Figure 3.12-1 in Section 3.12), including an unoccupied home site 1,320 feet (0.25 miles) from the property line. The closest occupied residence is about 6,500 feet (1.24 miles) east-southeast from the proposed solar facility property line. All other nearby occupied homes are approximately 7,800 feet (1.48 miles) or farther from the proposed solar facility property line. The closest home south of the proposed solar facility along Kaiser Road is 1.5 miles from the site. JTNP is located 1.8 miles to the northeast, 3.5 miles to the west, and over 7 miles to the north of the proposed solar facility site. The Eagle Mountain Elementary School and the Eagle Mountain Village residential area are over 5.5 miles northwest of the proposed solar facility site. The Lake Tamarisk development is about 2.75 miles south of the proposed solar facility site. The Community of Desert Center is about 5 miles south of the proposed solar facility site.

Construction of the solar facility would involve a few periods when construction activity would be within 6,500 feet of the closest occupied residence east-southeast of the solar facility site (installation of perimeter fencing and construction of the closest solar array modules). For most of the 24-month construction period, however, construction activity at the proposed solar facility site would be well over 6,500 feet from the nearest residence and more than 1.48 miles from other identified sensitive receptors (residences, schools, JTNP, etc.).

Existing background noise levels near the solar facility site are expected to be low, with typical daytime noise levels of 35 to 50 dBA. Background noise levels would be higher during periods of strong winds. Ambient noise levels within JTNP are expected to be 35 dBA or less. The

National Park Service (NPS) has provided a performance standard for noise mitigation, which is to limit noise levels at the Park boundary from the project to 35 dBA. This would meet the Park's stated goal of encouraging no increase in ambient noise levels within the Park from construction activities outside the Park. Based on construction noise estimates presented above in Table 4.12-2, noise from construction activity generally would be audible at locations less than a half mile from the solar facility; however, no occupied residence or other sensitive receptor is located this close to the solar facility site. When construction activity is occurring in the western and northern portions of the solar facility site, it would not be audible for any nearby residences. For any location greater than 2,500 feet, maximum CNEL noise levels from construction activity would be less than 46 dBA (highest level occurs during array post installation), which is within Riverside County's normally acceptable range for rural residential land uses. Maximum 1-hour Leq noise levels at distances greater than 2,500 feet would be about 43 dBA or less. This would be within expected average background noise conditions and would not result in a substantial increase over daytime noise levels even when ambient levels are as low as 35 dBA. Implementation of Mitigation Measure NOI-2 would require the on-site construction activities to be monitored and controlled so that they do not cause noise levels above 35 dBA at the boundary to JTNP, thereby meeting the Park's stated goal.

Noise from Construction-Related Traffic. After exiting I-10, project-related construction trucks and worker vehicles would travel north along SR-177 and then continue north along Kaiser Road to the main entrance of the project site. Baseline existing traffic conditions were analyzed for these roadways utilizing traffic data collected in November 2011 and presented in the Traffic Study for the DHSP (Hernandez, Kroone & Associates 2012). Baseline traffic conditions for I-10 were developed from 2008 traffic count data and 2007 truck count data downloaded from the Caltrans website (BLM 2011). In addition, traffic from construction of the Desert Sunlight Solar Farm Project would increase traffic along these routes. I-10 was split into two segments, one east of SR-177 and the other west of SR-177. Caltrans data show that medium trucks (two axles and six tires) account for 5.2 percent of annual average daily traffic (AADT) on I-10 west of SR-177 and 5.6 percent of AADT on I-10 east of SR-177 (BLM 2011 – Table E2-1). Caltrans data also show that heavy trucks (three or more axles) account for 34.3 percent of AADT on I-10 west of SR-177 and 37.8 percent of AADT on I-10 east of SR-177 (BLM 2011 – Table E2-1).

Existing traffic conditions along SR-177 south of Kaiser Road and along Kaiser Road in the project vicinity were based on 24-hour traffic counts completed in November 2011 and provided in the Traffic Study for the DHSP (Hernandez, Kroone & Associates 2012 – Appendix B). Traffic counts show that on SR-177 south of Kaiser Road medium trucks account for 10.9 percent and heavy trucks account for 27.5 percent of the existing traffic. Kaiser Road was modeled in two segments, one between SR-177 and the Lake Tamarisk development (south of Lake Tamarisk Road), and the other between the Lake Tamarisk development and the project site (north of Lake Tamarisk Road). Traffic counts show that on Kaiser Road medium trucks account for 14.4 percent of existing average daily traffic and heavy truck account for 17.3 percent (Hernandez, Kroone & Associates 2012 – Appendix B). Traffic counts taken north of the Lake Tamarisk development show that on Kaiser Road medium trucks account for 19.3 percent of existing average daily traffic and heavy trucks account for 2.5 percent (Hernandez, Kroone & Associates 2012 – Appendix B).

Construction periods for the solar project and gen-tie line would be expected to overlap. Kaiser Road would be used by construction-related traffic for both the solar project and the gen-tie line. Consequently, construction-related traffic volumes used for this analysis were the combined volumes attributable to solar project construction and gen-tie line construction. Based on the equipment materials and deliveries estimated for the solar project, a worst-case scenario of up to 52 deliveries per day would occur (see Hernandez, Kroone & Associates 2012 – Appendix B, Distribution of Construction Traffic by Time of Day). Overall construction period traffic patterns were developed by adding construction-related truck trips and construction-related worker commute trips to the baseline hourly traffic patterns for each roadway segment. Construction truck traffic was assumed to be all heavy trucks. Construction-related worker commute traffic was assumed to be all autos with 30 percent of the normal crew (or 27 workers) carpooling, reducing the total number of vehicles by 27. Arriving worker commute traffic was assumed to occur between 5:00 a.m. and 8:00 a.m., and to depart between 4:00 p.m. and 7:00 p.m. (see Hernandez, Kroone & Associates 2012 – Appendix B, Estimate of Construction Employee Trips – Desert Harvest Project Trips). Analysis was performed for the peak construction period, which would include 240 construction workers and 10 security guards (250 total). The traffic noise modeling assumed free-flow vehicle speeds of 45 miles per hour (mph) on Kaiser Road, 50 mph on SR-177, and 65 mph on I-10.

Table 4.12-3 summarizes modeled peak 1-hour Leq and CNEL levels for existing conditions and existing plus project construction at various distances (e.g., 50 feet, 100 feet, 250 feet, 500 feet, 750 feet, and 1,000 feet) from the road centerline. Please refer to the Appendix F for detailed calculations.

Table 4.12-3. Modeled 1-Hour Leq/CNEL Noise Levels from Construction Traffic, Proposed Project

Traffic Noise Source	Distance from Road Centerline (feet)	Existing 1-Hour Leq / CNEL (dBA)	Existing + Proposed Project 1-Hour Leq / CNEL (dBA)	Change from Existing 1-Hour Leq / CNEL (dBA)
Desert Center (I-10), West of SR-177	50	81.7 / 79.6	81.8 / 79.9	0.1 / 0.3
	100	78.6 / 76.6	78.7 / 76.8	0.1 / 0.2
	250	74.7 / 72.6	74.7 / 72.8	0.0 / 0.2
	500	71.7 / 69.6	71.7 / 69.8	0.0 / 0.2
	750	69.9 / 67.8	70.0 / 68.0	0.1 / 0.2
	1,000	68.6 / 66.6	68.7 / 66.8	0.1 / 0.2
Desert Center (I-10), East of SR-177	50	81.7 / 79.7	81.8 / 79.9	0.1 / 0.2
	100	78.6 / 76.6	78.7 / 76.8	0.1 / 0.2
	250	74.7 / 72.6	74.7 / 72.8	0.0 / 0.2
	500	71.7 / 69.6	71.7 / 69.8	0.0 / 0.2
	750	69.9 / 67.8	70.0 / 68.1	0.1 / 0.3
	1,000	68.7 / 66.6	68.7 / 66.8	0.0 / 0.2

Table 4.12-3. Modeled 1-Hour Leq/CNEL Noise Levels from Construction Traffic, Proposed Project

Traffic Noise Source	Distance from Road Centerline (feet)	Existing 1-Hour Leq / CNEL (dBA)	Existing + Proposed Project 1-Hour Leq / CNEL (dBA)	Change from Existing 1-Hour Leq / CNEL (dBA)
SR-177 South of Kaiser Road	50	70.9 / 72.0	71.4 / 72.7	0.5 / 0.7
	100	67.8 / 68.9	68.3 / 69.6	0.5 / 0.7
	250	63.8 / 64.9	64.4 / 65.6	0.6 / 0.7
	500	60.8 / 61.9	61.3 / 62.6	0.5 / 0.7
	750	59.1 / 60.1	59.6 / 60.8	0.6 / 0.7
	1,000	57.8 / 58.9	58.3 / 59.6	0.5 / 0.7
Kaiser Road South of Lake Tamarisk	50	61.9 / 62.2	64.6 / 66.0	2.7 / 3.8
	100	58.8 / 59.1	61.6 / 62.9	2.8 / 3.8
	250	54.9 / 55.1	57.6 / 58.9	2.7 / 3.8
	500	51.8 / 52.1	54.6 / 55.9	2.7 / 3.8
	750	50.1 / 50.3	52.8 / 54.1	2.7 / 3.8
	1,000	48.8 / 49.1	51.6 / 52.9	2.8 / 3.8
Kaiser Road North of Lake Tamarisk	50	52.4 / 52.3	61.9 / 63.7	9.5 / 11.4
	100	49.3 / 49.3	58.8 / 60.6	9.5 / 11.3
	250	45.4 / 45.3	54.8 / 56.6	9.5 / 11.3
	500	42.3 / 42.3	51.8 / 53.6	9.5 / 11.3
	750	40.6 / 40.5	50.0 / 51.9	9.4 / 11.4
	1,000	39.3 / 39.3	48.8 / 50.6	9.5 / 11.3
Kaiser Road, Maximum Traffic Noise at JTNP Boundary	Joshua Tree NP	35.0 / 35.2	37.7 / 39.0	2.7 / 3.8

CNEL = community noise equivalent level (a 24-hour weighted average)
Source: Appendix N.

As shown in Table 4.12-3, construction-related traffic would have little noise effect in Desert Center due to the relatively high noise levels generated by existing traffic on I-10. Most people cannot detect noise level changes of less than 1.5 to 2 dBA, but find noise level changes of 3 to 5 dBA to be noticeable, and noise level changes of 5 dBA or more to be obvious. A 10-dBA noise level increase represents a doubling of perceived noise levels. Thus, changes in CNEL or 1-hour Leq noise levels of less than 1 dBA in the Desert Center area would not be noticeable. At greater distances from I-10, noise from construction-related traffic would have a greater influence on overall traffic noise conditions. Along SR-177 south of Kaiser Road, the increase in noise generated by construction traffic would be less than 1 dBA and not noticeable. Along Kaiser Road south of Lake Tamarisk Road there would be a noticeable increase in traffic noise levels (over a 3 dBA increase) and north of Lake Tamarisk Road noise levels would substantially increase (>10 dBA increase). At 50 feet from the centerline of Kaiser Road, CNEL levels would be within Riverside County's conditionally acceptable range for rural residential land uses (Table 3.12-2; 55-70 dBA CNEL) and at 180 feet back within the normally acceptable range for rural residential land uses (Table 3.12-2; up to 60 dBA CNEL).

The closest project roadway to JTNP is Kaiser Road (not including the I-10, where construction-related traffic would have little impact on traffic noise levels as indicated in Table 4.12-3). JTNP is located approximately 4.6 miles west of Kaiser Road at its closest point south of Lake

Tamarisk, and approximately 3.4 miles west of Kaiser Road at its closest point north of Lake Tamarisk. Ambient noise levels within JTNP are 35 dBA or less. As shown in Table 4.12-3, and assuming existing noise levels of 35 dBA at JTNP during daytime hours when the majority of construction activities would be occurring, noise levels within JTNP resulting from the additional construction traffic along Kaiser Road including noise from existing traffic to Lake Tamarisk would increase 3-4 dBA, which would be noticeable.

Ground Vibrations from Construction Activities. Heavy equipment and trucks used for solar facility construction are potential sources of ground vibration. Ground vibration conditions expected from solar facility construction have been evaluated using procedures developed by Caltrans (2004). The Caltrans procedure provides equations for predicting ground vibration levels by distance from selected types of construction equipment according to local ground conditions. Four categories of ground conditions are used to select equation parameters in the Caltrans procedure:

- Category 1: Weak or soft soils, loose soils, loose sand, mud, saturated soils, plowed ground, etc.;
- Category 2: Competent soils, most sands, sandy clays, silty clays, gravel, silts, weathered rock, etc.;
- Category 3: Hard soils, dense compacted sands, dry consolidated clay, consolidated glacial till, etc.;
- Category 4: Hard, competent rock, bedrock, exposed hard rock, etc.

Caltrans Category 2 conditions were considered representative of the solar facility area, same as for the Desert Sunlight Solar Farm Project located immediately north of the DHSP, for the early phases of construction when most heavy equipment would be in use. Although Category 3 might be representative of the on-site conditions at the solar facility following the soil compaction phase of construction activity, there would be much less heavy equipment use following that phase. In addition, Category 2 soil conditions would continue to prevail at off-site locations. Table 4.12-4 summarizes the results of the vibration analysis.

Table 4.12-4. Ground Vibration Levels for Typical Equipment Used for Solar Facility Construction

Equipment Type	Vibratory Type	Parameter	Distance from Operating Equipment Item			
			25 feet	100 feet	200 feet	300 feet
Vibratory Pile Driver, typical	Frequent or Continuous	PPV, in/sec	0.170	0.028	0.011	0.007
		Human Response	mildly annoying	barely perceptible	barely perceptible	not perceptible
		Building Damage Potential	very low	none	none	none
Self-Loading Scraper	Frequent or Continuous	PPV, in/sec	0.089	0.015	0.006	0.004
		Human Response	distinctly perceptible	barely perceptible	not perceptible	not perceptible
		Building Damage Potential	extremely low	none	none	none
Static Roller-Compactor	Frequent or Continuous	PPV, in/sec	0.089	0.015	0.006	0.004
		Human Response	distinctly perceptible	barely perceptible	not perceptible	not perceptible

Table 4.12-4. Ground Vibration Levels for Typical Equipment Used for Solar Facility Construction

Equipment Type	Vibratory Type	Parameter	Distance from Operating Equipment Item			
			25 feet	100 feet	200 feet	300 feet
		Building Damage Potential	extremely low	none	none	none
Large Bulldozer	Frequent or Continuous	PPV, in/sec	0.089	0.015	0.006	0.004
		Human Response	distinctly perceptible	barely perceptible	not perceptible	not perceptible
		Building Damage Potential	extremely low	none	none	none
Drill Rig or Auger	Frequent or Continuous	PPV, in/sec	0.089	0.015	0.006	0.004
		Human Response	distinctly perceptible	barely perceptible	not perceptible	not perceptible
		Building Damage Potential	extremely low	none	none	none
Loaded Truck	Single Event	PPV, in/sec	0.076	0.013	0.005	0.003
		Human Response	barely perceptible	not perceptible	not perceptible	not perceptible
		Building Damage Potential	None	none	none	none
Small Bulldozer	Frequent or Continuous	PPV, in/sec	0.003	0.000	0.000	0.000
		Human Response	not perceptible	not perceptible	not perceptible	not perceptible
		Building Damage Potential	none	none	none	none
Excavator or Backhoe	Frequent or Continuous	PPV, in/sec	0.003	0.000	0.000	0.000
		Human Response	not perceptible	not perceptible	not perceptible	not perceptible
		Building Damage Potential	none	none	none	none
Wheeled Loader	Frequent or Continuous	PPV, in/sec	0.003	0.000	0.000	0.000
		Human Response	not perceptible	not perceptible	not perceptible	not perceptible
		Building Damage Potential	none	none	none	none

PPV = peak particle velocity, inches per second
Human reactions and building damage potential have different thresholds depending on whether the vibration events are isolated discrete events or frequent/continuous events.
Building damage potential is based on cosmetic (not structural) damage to buildings or structures of various types and ages. Building damage categories are:

- Extremely Low = exceeds cosmetic damage threshold for extremely fragile historic buildings, ruins, or monuments
- Very Low = exceeds cosmetic damage threshold for fragile buildings
- Low = exceeds cosmetic damage threshold for historic buildings
- Moderate = exceeds cosmetic damage threshold for older residential buildings
- High = exceeds cosmetic damage threshold for newer residential buildings
- Very High = exceeds cosmetic damage thresholds for modern commercial and industrial buildings.

Source: BLM 2011 – Table 4.10-5.

As demonstrated by the data in Table 4.12-4, ground vibration from most types of equipment used for solar facility construction would not be perceptible at distances of 200 feet or more from operating equipment items. For vibratory pile drivers, ground vibrations would not be

perceptible at distances of 300 feet or more from the operating equipment. Construction activity would not cause perceptible ground vibrations and would pose no risk of cosmetic damage to any existing buildings in the solar facility vicinity.

Indirect Effects

There are no indirect effects related to noise and vibration for construction.

Operation and Maintenance

Noise generated from operations and maintenance of the proposed project would include noise generated by the inverters, substation, switchyard, tracking-system, if used, and gen-tie line; vegetation clearing and weed management activities; and maintenance activities, such as periodic water washes of the panels and road maintenance. Operations and maintenance work would be completed on an as-needed basis, with 8 full-time O&M workers traveling from Palm Springs or from a leased or purchased facility in Desert Center. Facilities would be maintained utilizing 2 small 4-wheel drive vehicles for panel washing and 4 pickup trucks for accessing the site and delivering equipment and crews for maintenance activities. Panel washing would occur no more than three times per year and less frequently over time as soil compaction increases (enXco 2011a – DR#1 Question N-9). On-site vehicle use would be limited to service trucks at not more than 2 hours per day, not more than 20 hours a year for larger vehicles (enXco 2011a – DR#1 Question AR-2). Operation and maintenance of the facility would result in both on-site and off-site noise.

Direct Effects

Solar Facility (Including On-Site Substation)

Noise from Facility Operations. Operational activities at the solar facility site would generate minimal noise. Identifiable sources of noise would include on-site vehicle use for panel-washing, vegetation treatment, delivering equipment and crews for maintenance activities; power conversion station (PCS) equipment; and the on-site substation. There would be limited amounts of vehicle traffic on the site; this vehicle activity would be intermittent and would not be expected to generate off-site noise effects at identified residences.

Inverters and transformers at the PCS would produce low levels of noise during facility operations, but this noise would be limited to daytime hours when the solar arrays are generating electricity. Each PCS would have an inverter located within an enclosure and one transformer, with each array block typically employing two 720 kW inverters. The Applicant is still determining the model of inverters to use but the model would likely be similar to a Xantrex 500-kW model, Satcon 1-MW model, or SMA 720-kW model. Each PCS inverter would generate a noise level of about 80 dBA at a distance of 3.28 feet (1 meter) (enXco 2011a – DR#1 Question N-2) or 74 dBA at a distance of 6.5 feet (2 meters), assuming a reduction of 6 dB per doubling of distance. Based on similar equipment used on the Desert Sunlight Solar Farm Project, this analysis assumes that each PCS inverter would generate a noise level of about 75 dBA at a distance of 10 feet (or a level just slightly higher than that specified by the Applicant), or about 78 dBA at 10 feet for two inverters (BLM 2011). The PCS enclosure would provide 15 to 20 dBA of noise reduction, reducing the inverter noise to 63 dBA at a distance of 10 feet from the enclosure (BLM 2011). The PCS transformers generate a noise level of about 58 dBA at a distance of 6

feet (BLM 2011). For analysis purposes, the overall noise generation from the PCS (inverter housing, air conditioner, and transformer) is estimated to be 65 dBA at a distance of 10 feet (BLM 2011). This noise level would be reduced to 50 dBA at a distance of 56 feet, to 40 dBA at a distance of 178 feet, and to 35 dBA at a distance of 312 feet. The PCS would be centrally located within each array block of solar panels, about 240 to 300 feet from the sides of the array. Thus, the PCS would generate little audible noise beyond the solar facility property line during daytime hours. The PCS would not be a source of noise during nighttime hours. Furthermore, the closest occupied residence is located 6,500 feet from the property line and JTNP is located a minimum of 1.8 miles from the property line such that noise generated by the PCS would not be detectible.

Transformers and related equipment at the on-site substation would be the most important source of operational noise. Similar to the Desert Sunlight Solar Farm Project, transformers at the on-site substation would have cooling fans that operate during daytime hours, but which would not be needed at night when the solar arrays are not generating power. The transformers at the on-site substation are expected to generate noise levels of 89 dBA at a distance of 6 feet during the daytime, and 86 dBA at a distance of 1 foot during nighttime hours (BLM 2011). Daytime noise generation from the on-site substation is expected to be 70.6 dBA at a distance of 50 feet from the substation, 60 dBA at 168 feet, 50 dBA at 521 feet, 45 dBA at 907 feet, and 40 dBA at 1,535 feet (BLM 2011). Nighttime noise generation from the on-site substation is expected to be 52.1 dBA at a distance of 50 feet, 50 dBA at a distance of 64 feet, 40 dBA at a distance of 200 feet, and 35 dBA at a distance of 353 feet (BLM 2011). The on-site substation would be located over 1.25 miles from the closest occupied residence and over 3.5 miles east from JTNP. If gen-tie Alternative E (New Cross-Valley Alignment) were selected with any of the solar facility action alternatives, including Alternative 4, the substation would be located in the southern-middle portion of the site; the closest existing residence would be approximately 2 miles away and JTNP would be approximately 3 miles away. Under either substation location scenario, daytime noise from the on-site substation would generally be well below background noise levels (50-35 dBA) at the closest residence and JTNP (35 dBA performance standard); nighttime noise would also be well below the background noise levels (35-25 dBA) at the closest residence and JTNP (35 dBA performance standard). Furthermore, these noise levels would meet the Riverside County stationary source exterior noise limit of 65 dBA, 10-minute Leq and Riverside County Ordinance No. 847, which limits noise at rural residential properties to 45 dBA Lmax.

Indirect Effects

There are no indirect effects related to noise and vibration for O&M.

Decommissioning

The expected operational life of the proposed project is 30 years. When permanent closure is appropriate, a decommissioning plan would be developed and submitted to the BLM for review and approval. Closure may range from temporary “mothballing” to complete removal of equipment and restoration of the land to BLM approved specifications. The latter of these formulates the basis for the noise analysis for decommissioning.

Direct Effects

Noise from Decommissioning Activities. Decommissioning of the solar facility would require disassembly of mechanical equipment components, demolition of on-site buildings, and removal of perimeter fencing. Many equipment components would include materials that could be recycled, although some materials would probably require disposal in appropriate landfills or other waste disposal areas. It is likely that some type of revegetation program also would be required. Equipment used for decommissioning would generally be similar to that used for construction. Decommissioning activities would likely require less heavy equipment than facility construction, since no vegetation clearing or site grading would be required. Noise effects from decommissioning activities at the solar facility site would be similar to, but probably somewhat less than, those previously estimated for construction activities (see Table 4.12-2, above).

Noise from Traffic Associated with Decommissioning. Traffic volumes associated with decommissioning activities would likely be similar to traffic volumes associated with construction activities. Because decommissioning would occur at least 30 years in the future, it is likely that vehicle engine technology would be different from current technology. Engine technologies that do not rely on internal combustion engines would likely generate lower noise levels than those produced by current vehicles. This effect is already apparent with hybrid vehicles. Consequently, noise effects from traffic associated with decommissioning activities would likely be somewhat less than the noise levels previously estimated for construction-related traffic (see Table 4.12-3, above).

Ground Vibrations from Decommissioning Activity. Ground vibrations generated during solar facility decommissioning would be similar to those previously discussed with respect to construction activities (see Table 4.12-4, above).

Indirect Effects

There are no indirect effects related to noise and vibration for decommissioning.

Mitigation Measures

The following mitigation measure would ensure that on-site Project-related construction activities would be consistent with the Riverside County Noise Ordinance (No. 847) and would not increase ambient noise levels within JTNP boundaries:

MM NOI-1 **Limit Construction Hours When Occurring Near Occupied Residences.** The project owner or its construction contractor shall limit construction activity within a quarter mile of an inhabited dwelling (as identified at the time of construction) to 6:00 a.m. to 6:00 p.m. during June through September and 7:00 a.m. to 6:00 p.m. during October through May to maintain consistency with Riverside County Noise Ordinance No. 847. Certain electrical connection activities at the solar facility site may occur at night for safety reasons; however, no heavy equipment operations would be required for these activities.

MM NOI-2 **No Net Increase in Ambient Noise within JTNP**. The project owner shall ensure that on-site project construction activities do not result in noise levels above 35 dBA Leq (1-hour) within the boundary of JTNP. The project owner shall ensure regular monitoring of noise levels at the Park boundary closest to on-

site project construction activities. If noise levels as a result of on-site project construction exceed 35 dBA Leq (1-hour) within the Park boundary, a noise attenuation barrier shall be erected around the project construction activities to dampen the noise to less than 35 dBA Leq (1-hour) within the Park.

Residual Impacts and Unavoidable Adverse Effects

Implementation of Alternative 4 would result in a substantial increase (>10 dBA) in traffic noise levels above existing ambient noise levels along Kaiser Road north of Lake Tamarisk Road during construction and decommissioning, which would result in a temporary unavoidable adverse effect on occupied residences. No unavoidable adverse vibration effects would occur under Alternative 4.

4.12.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would remain in the same location as Alternative 4 and would use the same project boundaries and access routes as Alternative 4 except that it would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA). The WHMA is located along the northeastern boundary of the project site. No residences are located near this area, such that exclusion of the WHMA does not change the distance of the project components to the closest residence(s).

Direct Effects

Construction

Noise from On-Site Construction Activity. The solar facility under Alternative 5 would be slightly smaller than for Alternative 4 (discussed above in Section 4.12.6), but construction activities would occur on the same schedule as Alternative 4 and would require the same types of equipment. Additionally, the size of the area disturbed on a given day may be slightly smaller under Alternative 5 than Alternative 4. While the total number of some equipment items may be less under Alternative 5 than Alternative 4, similar types and numbers of equipment items would typically be operating in proximity. For noise analysis purposes, it has been assumed that the number and types of equipment operating in proximity at the solar facility under Alternative 5 would be the same as analyzed for Alternative 4.

As indicated previously in Table 4.12-2, daytime construction activity at the solar facility site would not generate significant noise impacts at any nearby occupied residence or within JTNP with implementation of Mitigation Measures NOI-1 and NOI-2.

Noise from Construction-Related Traffic. Alternative 5 would require slightly less construction materials and related truck trips, and possibly fewer construction workers than Alternative 4; however, the difference would be minimal. For the purposes of noise effects analysis, it is assumed that traffic noise generated during construction of the solar facility under Alternative 5 would be identical to Alternative 4 (see Table 4.12-3).

As shown in Table 4.12-3, construction-related traffic would have little noise impact in Desert Center due to the relatively high noise levels generated by existing traffic on I-10. Assuming existing noise levels of 35 dBA at JTNP during daytime hours when the majority of construction

activities would be occurring, the noise level increase within JTNP due to the additional construction traffic along Kaiser Road would be noticeable (a 3-4 dBA increase).

Ground Vibrations from Construction Activity. Ground vibration effects from construction activities for Alternative 5 would be the same as presented previously in connection with Alternative 4.

Indirect Effects

There are no indirect effects related to noise and vibration for construction.

Operation and Maintenance

Direct Effects

Noise from Facility Operations. Operational noise under Alternative 5 would be essentially the same as that discussed for Alternative 4. Noise levels from solar facility operations would be within limits set by the Riverside County noise ordinance, would seldom be audible beyond the property line, and would not be audible at any existing occupied residence or within JTNP.

Indirect Effects

There are no indirect effects related to noise and vibration for O&M.

Decommissioning

Direct Effects

The noise and vibration effects resulting from decommissioning under Alternative 5 would be the same as those discussed under Alternative 4.

Indirect Effects

There are no indirect effects related to noise and vibration for decommissioning.

Mitigation Measures

Applicant measures and mitigation measures for Alternative 5 would be the same as those discussed for Alternative 4 (Mitigation Measures NOI-1 and NOI-2).

Residual Impacts and Unavoidable Adverse Effects

Implementation of Alternative 5 would result in a substantial increase in traffic noise levels above existing ambient noise levels along Kaiser Road north of Lake Tamarisk Road during construction and decommissioning, which would result in a temporary unavoidable adverse effect on occupied residences. No unavoidable adverse vibration effects would occur under Alternative 5.

4.12.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would remain in the same location as Alternative 4 and would use the same project boundaries and access routes as Alternative 4 except that it would exclude a portion of the site which hosts sensitive plant species and the southwestern parcel. There are no residences located near the southwestern parcel (closest residence is located 1.5 miles to the south).

Direct Effects

Construction

Noise from On-Site Construction Activity. Alternative 6 would be smaller in scale than Alternative 4 (and Alternative 5), but construction activities would occur on the same schedule as for Alternative 4 and would require the same types of equipment. The size of the area disturbed on a given day would be smaller under Alternative 6 than under Alternatives 4 and 5. While total numbers of some equipment items would be less under Alternative 6 than under Alternatives 4 or 5, similar types and numbers of equipment items would typically be operating in proximity under Alternatives 4, 5, and 6. For noise analysis purposes, it has been assumed that the number and types of equipment operating in proximity for Alternative 6 would be the same as analyzed for Alternative 4.

As indicated previously in Table 4.12-2, daytime construction activity at the solar facility site would not generate significant noise effects at any nearby occupied residence or within JTNP with implementation of Mitigation Measures NOI-1 and NOI-2.

Noise from Construction-Related Traffic. Alternative 6 would be expected to require less construction material, fewer construction-related truck trips, and slightly fewer construction workers than under Alternatives 4 and 5. As such, construction-related traffic and associated noise effects would be less than that modeled for Alternative 4. As such, noise levels along I-10, SR-177, and Kaiser Road would be less than the noise levels estimated in Table 4.12-3. However, the difference in noise levels is not expected to be substantially lower such that there would continue to be a substantial increase in noise levels for occupied residences resulting from the project along Kaiser Road north of Lake Tamarisk Road. As shown in Table 4.12-3, construction-related traffic would have little noise impact in Desert Center due to the relatively high noise levels generated by existing traffic on I-10. Assuming existing noise levels of 35 dBA at JTNP during daytime hours when the majority of construction activities would be occurring, the noise level increase within JTNP due to the additional construction traffic along Kaiser Road would be noticeable (a 3-4 dBA increase).

Ground Vibrations from Construction Activity. Ground vibration effects from construction activities for Alternative 6 would be the same as presented previously in connection with Alternative 4.

Indirect Effects

There are no indirect effects related to noise and vibration for construction.

Operation and Maintenance

Direct Effects

Noise from Facility Operations. Operational noise under Alternative 6 would be essentially the same as that discussed for Alternative 4. Noise levels from solar facility operations would be within limits set by the Riverside County noise ordinance, would seldom be audible beyond the property line, and would not be audible at any existing occupied residence or within JTNP.

Indirect Effects

There are no indirect effects related to noise and vibration for O&M.

Decommissioning

Direct Effects

The noise and vibration effects resulting from decommissioning under Alternative 6 would be the same as those discussed under Alternative 4.

Indirect Effects

There are no indirect effects related to noise and vibration for decommissioning.

Mitigation Measures

Applicant measures and mitigation measures for Alternative 6 would be the same as those discussed for Alternative 4 (Mitigation Measures NOI-1 and NOI-2).

Residual Impacts and Unavoidable Adverse Effects

Implementation of Alternative 6 would result in a substantial increase in traffic noise levels above existing ambient noise levels along Kaiser Road north of Lake Tamarisk Road during construction and decommissioning, which would result in a temporary unavoidable adverse effect on occupied residences. No unavoidable adverse vibration effects would occur under Alternative 6.

4.12.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet. Alternative 7 would exclude the same portion of the site as Alternative 6. There are no residences located near the southwestern parcel (closest residence is located 1.5 miles to the south).

Direct Effects

Construction

Noise from On-Site Construction Activity. Alternative 7 would be smaller in scale than Alternative 4 (and Alternative 5), but construction activities would occur on the same schedule as for Alternative 4 and would require the same types of equipment. The size of the area disturbed on a given day would be smaller under Alternative 7 than under Alternatives 4 and 5. While total numbers of some equipment items would be less under Alternative 7 than under Alternatives 4 or 5, similar types and numbers of equipment items would typically be operating in proximity under Alternatives 4, 5, and 7. For noise analysis purposes, it has been assumed that the number and types of equipment operating in proximity for Alternative 7 would be the same as analyzed for Alternative 4.

As indicated previously in Table 4.12-2, daytime construction activity at the solar facility site would not generate significant noise effects at any nearby occupied residence or within JTNP with implementation of Mitigation Measures NOI-1 and NOI-2.

Noise from Construction-Related Traffic. Alternative 7 would be expected to require less construction material, fewer construction-related truck trips, and slightly fewer construction workers than under Alternatives 4 and 5. As such, construction-related traffic and associated noise effects would be less than that modeled for Alternative 4. As such, noise levels along I-10, SR-177, and Kaiser Road would be less than the noise levels estimated in Table 4.12-3. However, the difference in noise levels is not expected to be substantially lower such that there would continue to be a substantial increase in noise levels for occupied residences resulting from the project along Kaiser Road north of Lake Tamarisk Road. As shown in Table 4.12-3, construction-related traffic would have little noise impact in Desert Center due to the relatively high noise levels generated by existing traffic on I-10. Assuming existing noise levels of 35 dBA at JTNP during daytime hours when the majority of construction activities would be occurring, the noise level increase within JTNP due to the additional construction traffic along Kaiser Road would be noticeable (a 3-4 dBA increase).

Ground Vibrations from Construction Activity. Ground vibration effects from construction activities for Alternative 7 would be the same as presented previously in connection with Alternative 4.

Indirect Effects

There are no indirect effects related to noise and vibration for construction.

Operation and Maintenance

Direct Effects

Noise from Facility Operations. Operational noise under Alternative 7 would be essentially the same as that discussed for Alternative 4. Noise levels from solar facility operations would be within limits set by the Riverside County noise ordinance, would seldom be audible beyond the property line, and would not be audible at any existing occupied residence or within JTNP.

Indirect Effects

There are no indirect effects related to noise and vibration for O&M.

Decommissioning

Direct Effects

The noise and vibration effects resulting from decommissioning under Alternative 7 would be the same as those discussed under Alternative 4.

Indirect Effects

There are no indirect effects related to noise and vibration for decommissioning.

Mitigation Measures

Applicant measures and mitigation measures for Alternative 7 would be the same as those discussed for Alternative 4 (Mitigation Measures NOI-1 and NOI-2).

Residual Impacts and Unavoidable Adverse Effects

Implementation of Alternative 7 would result in a substantial increase in traffic noise levels above existing ambient noise levels along Kaiser Road north of Lake Tamarisk Road during construction and decommissioning, which would result in a temporary unavoidable adverse effect on occupied residences. No unavoidable adverse vibration effects would occur under Alternative 7.

4.12.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, no noise or vibration effects related to construction, operations and maintenance, or decommissioning would occur.

4.12.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Alternative B would utilize transmission infrastructure developed for First Solar's Desert Sunlight Solar Farm Project by sharing the approved transmission towers. Stringing of the project owner's gen-tie line would occur concurrently with construction of First Solar Desert Sunlight Solar Farm Project's gen-tie line. However, since this construction had not yet begun as of September 2011, this analysis assumes that Alternative B would require all related construction activities, including tower installation.

Direct Effects

Construction

Noise from On-Site Construction Activities. The Alternative B gen-tie line would be identical to the gen-tie line for the Desert Sunlight Solar Farm Project and the same number of towers would be constructed (73 transmission structures, including 65 tangents and 8 dead-ends, with 5 splicing locations and 20 guard structures). As such, construction of the Alternative B gen-tie line would result in identical noise levels as were estimated for the Desert Sunlight Solar Farm Project. For the transmission line, four of six construction phases were selected for noise analysis (BLM 2011):

- Site preparation;
- Tower foundations
- Tower assembly and erection; and
- Power line stringing.

The remaining two construction phases (testing and site cleanup) would have limited heavy equipment use, and would generate lower noise levels than these phases. Not all equipment items would operate concurrently, but several items of equipment would typically be active over a construction day. Equipment items that would typically be operating in proximity were identified and used in the construction noise analyses. Construction activity would generally occur over a standard five-day workweek (Monday through Friday) with activity limited to daytime

hours when located near inhabited dwellings pursuant to Mitigation Measure NOI-1 and consistent with the Riverside County noise ordinance (beginning at 7:00 a.m. during most of the year, and perhaps starting as early as 6:00 a.m. during the summer months, and ending no later than 6:00 p.m.). Table 4.12-5 summarizes the construction noise analysis results for the five construction phases with the greatest noise generation for the Alternative B gen-tie line.

Table 4.12-5. Summary of Construction Noise for the Gen-Tie Line (Alternative B)

Construction Phase	Typical Equipment	Distance from Construction (feet)	Maximum 1-Hour Leq Increment (dBA)	Average Daytime Leq Increment (dBA)	CNEL Increment (dBA)
Site Preparation	Tracked Dozer, Grader, Roller-Compactor, Wheeled Loader, Dump Truck, Water Truck	100	80.3	78.1	75.0
		200	74.1	71.8	68.8
		300	70.3	68.1	65.1
		500	65.5	63.2	60.2
		700	62.1	59.9	56.9
		1,000	58.4	56.1	53.1
Tower Foundations	Tracked Dozer, Wheeled Loader, Backhoe, Auger Rig, Drill Rig, Compressor, Pump, Jackhammer, Portable Mixer, Forklift, Mobile Crane, Dump Trick, Cement Mixer Truck, Specialty Trucks, Water Truck	100	84.3	79.8	76.8
		200	78.0	73.6	70.6
		300	74.2	69.9	66.9
		500	69.3	65.0	62.0
		700	65.9	61.7	58.7
		1,000	62.1	58.0	55.0
Tower Assembly and Erection	Portable Compressor, Forklift, Mobile Crane, Water Truck, Flatbed Truck	100	81.9	78.0	75.0
		200	75.7	71.9	68.8
		300	72.0	68.2	65.2
		500	67.3	63.4	60.4
		700	64.0	60.2	57.2
		1,000	60.4	56.6	53.6
Power Line Stringing	Tracked Dozer, Backhoe, Portable Compressor, Line Puller, Specialty Trucks, Truck Tractor, Water Truck	100	78.9	75.6	72.6
		200	72.7	69.4	66.4
		300	69.0	65.7	62.7
		500	64.3	61.0	57.9
		700	61.0	57.7	54.7
		1,000	57.4	54.1	51.1

Leq = equivalent continuous noise level
CNEL = community noise equivalent level (a 24-hour weighted average)
Source: BLM 2011 – Table 4.10-6.

The Alternative B gen-tie line would be located on the west side of Kaiser Road from the solar facility site to a location south of the Tamarisk Lake development. There are some rural residences in addition to the Tamarisk Lake development along that part of the transmission line corridor (refer to Figure 3.12-1 in the Noise section of Chapter 3). Based on aerial photographs, the closest homes appear to be about 500 feet from the transmission line corridor. JTNP is located approximately 3.4 miles west of the Alternative B gen-tie alignment, which parallels

Kaiser Road. The four construction phases evaluated above would last about twelve months. During that time, construction activity would advance in a linear fashion along the 12.1-mile transmission line corridor. Consequently, construction activity would be near any given location for only a few weeks of the overall construction period.

As indicated in Table 4.12-6, daytime construction activity along the transmission line corridor would be a temporary but noticeable noise source for locations within about 1,000 feet of the active construction area. CNEL increments at the homes closest to the transmission line corridor (distance of 500 feet) would temporarily reach about 62 dBA during tower foundation construction, with maximum 1-hour Leq noise levels of about 69 dBA. CNEL increments would temporarily exceed Riverside County's normally acceptable limit for rural residential land uses, but would remain within the conditionally acceptable range. Implementation of Mitigation Measure NOI-1 would maintain consistency with the Riverside County noise ordinance by limiting construction to the exempted hours (beginning at 7:00 a.m. during most of the year, and starting as early as 6:00 a.m. during the summer months, and ending no later than 6:00 p.m.).

Ambient noise levels within JTNP are expected to be 35 dBA or less, and the NPS has provided a performance standard for noise mitigation limiting noise levels at the Park boundary from the project to 35 dBA. Implementation of Mitigation Measure NOI-2 would require the on-site construction activities to be monitored and controlled so that they do not cause noise levels above 35 dBA at the boundary to JTNP.

Noise from Construction-Related Traffic. Noise from construction-related traffic for the solar facility site, including the gen-tie line, was presented previously in Table 4.10-3. Construction-related traffic would have little noise impact in Desert Center due to the relatively high noise levels generated by existing traffic on I-10. Most people cannot detect noise level changes of less than 1.5 to 2 dBA, but find noise level changes of 3 to 5 dBA to be noticeable, and find noise level changes of 5 dBA or more to be obvious. The changes in CNEL and 1-hour Leq noise levels in the Desert Center area would not be noticeable. At greater distances from I-10, noise from construction-related traffic would have a greater influence on overall traffic noise conditions. Along SR-177 south of Kaiser Road, the increase in noise generated by construction traffic would be less than 1 dBA and not noticeable. Along Kaiser Road south of Lake Tamarisk Road there would be a noticeable increase in traffic noise levels (3-4 dBA increase) and north of Lake Tamarisk Road noise levels would substantially increase (>10 dBA increase). At 50 feet from the centerline of Kaiser Road, CNEL levels would be within Riverside County's conditionally acceptable range for rural residential land uses (Table 3.12-2; 55-70 dBA CNEL) and at 180 feet back within the normally acceptable range for rural residential land uses (Table 3.12-2; up to 60 dBA CNEL). Assuming noise levels of 35 dBA at JTNP during daytime hours when the majority of construction activities would be occurring, the noise level increase within JTNP due to additional construction traffic along Kaiser Road would be noticeable (a 3-4 dBA increase).

Ground Vibrations from Construction Activities. Ground vibration effects from construction of the gen-tie line under Alternative B were assessed using the same procedures as discussed previously for the solar facility site. Table 4.12-6 summarizes the ground vibration analysis for construction of gen-tie line.

Table 4.12-6. Ground Vibration Levels for Typical Equipment Used for Gen-Tie Line Construction

Equipment Type	Vibratory Type	Parameter	Distance from Operating Equipment Item			
			25 feet	100 feet	200 feet	300 feet
Static Roller-Compactor	Frequent or Continuous	PPV, in/sec	0.089	0.015	0.006	0.004
		Human Response	distinctly perceptible	barely perceptible	not perceptible	not perceptible
		Building Damage Potential	extremely low	none	none	none
Self-Loading Scraper	Frequent or Continuous	PPV, in/sec	0.089	0.015	0.006	0.004
		Human Response	distinctly perceptible	barely perceptible	not perceptible	not perceptible
		Building Damage Potential	extremely low	none	none	none
Large Bulldozer	Frequent or Continuous	PPV, in/sec	0.089	0.015	0.006	0.004
		Human Response	distinctly perceptible	barely perceptible	not perceptible	not perceptible
		Building Damage Potential	extremely low	none	none	none
Drill Rig or Auger	Frequent or Continuous	PPV, in/sec	0.089	0.015	0.006	0.004
		Human Response	distinctly perceptible	barely perceptible	not perceptible	not perceptible
		Building Damage Potential	extremely low	none	none	none
Loaded Truck	Single Event	PPV, in/sec	0.076	0.013	0.005	0.003
		Human Response	barely perceptible	not perceptible	not perceptible	not perceptible
		Building Damage Potential	none	none	none	none
Jackhammer	Frequent or Continuous	PPV, in/sec	0.035	0.006	0.002	0.001
		Human Response	barely perceptible	not perceptible	not perceptible	not perceptible
		Building Damage Potential	none	none	none	none
Small Bulldozer	Frequent or Continuous	PPV, in/sec	0.003	0.000	0.000	0.000
		Human Response	not perceptible	not perceptible	not perceptible	not perceptible
		Building Damage Potential	none	none	none	none
Excavator or Backhoe	Frequent or Continuous	PPV, in/sec	0.003	0.000	0.000	0.000
		Human Response	not perceptible	not perceptible	not perceptible	not perceptible
		Building Damage Potential	none	none	none	none
Wheeled Loader	Frequent or Continuous	PPV, in/sec	0.003	0.000	0.000	0.000
		Human Response	not perceptible	not perceptible	not perceptible	not perceptible

Table 4.12-6. Ground Vibration Levels for Typical Equipment Used for Gen-Tie Line Construction

Equipment Type	Vibratory Type	Parameter	Distance from Operating Equipment Item			
			25 feet	100 feet	200 feet	300 feet
		Building Damage Potential	none	none	none	none

PPV = peak particle velocity, inches per second
Human reactions and building damage potential have different thresholds depending on whether the vibration events are isolated discrete events or frequent/continuous events.
Building damage potential is based on cosmetic (not structural) damage to buildings or structures of various types and ages. Building damage categories are:

- Extremely Low = exceeds cosmetic damage threshold for extremely fragile historic buildings, ruins, or monuments
- Very Low = exceeds cosmetic damage threshold for fragile buildings
- Low = exceeds cosmetic damage threshold for historic buildings
- Moderate = exceeds cosmetic damage threshold for older residential buildings
- High = exceeds cosmetic damage threshold for newer residential buildings
- Very High = exceeds cosmetic damage thresholds for modern commercial and industrial buildings.

Source: BLM 2011 – Table 4.10-7.

As demonstrated by the data in Table 4.12-6, ground vibration from most types of construction equipment used for gen-tie line construction would not be perceptible at distances of 200 feet or more from operating equipment items. Gen-tie line construction activity would not cause perceptible ground vibrations and would pose no risk of cosmetic damage to any existing buildings along the transmission line corridor.

Indirect Effects

There are no indirect effects related to noise and vibration for construction.

Operation and Maintenance

Direct Effects

Noise from Facility Operations. The gen-tie line would have no persistent operational noise generation, with the exception of corona noise, as routine transmission line inspection and maintenance activities would occur on an as needed basis. Southern California Edison has estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line ROW (CPUC 2006). Ambient noise levels during rainstorms often exceed this noise level, especially if the rain is accompanied by high winds.

Indirect Effects

There are no indirect effects related to noise and vibration for O&M.

Decommissioning

Direct Effects

Noise from Decommissioning Activities. Decommissioning of the gen-tie line under Alternative B would require removal of the transmission cables, removal of the transmission towers and footings, filling of tower footing excavations, and perhaps a limited amount of revegetation along the transmission line corridor. Equipment used for decommissioning would generally be similar to that used for construction. Noise effects from decommissioning activities for the gen-

tie line would be similar to, but probably somewhat less than, those previously estimated for construction activities (see Table 4.12-5, above).

Noise from Traffic Associated with Decommissioning. Traffic volumes associated with decommissioning activities would likely be similar to traffic volumes associated with construction activities. Because decommissioning would occur at least 30 years in the future, it is likely that vehicle engine technology would be different from current technology. Engine technologies that do not rely on internal combustion engines would likely generate lower noise levels than those produced by current vehicles. This effect is already apparent with hybrid vehicles. Consequently, noise effects from traffic associated with decommissioning activities would likely be somewhat less than the noise levels previously estimated for construction-related traffic (see Table 4.12-3, above).

Ground Vibrations from Decommissioning Activity. Ground vibrations generated during decommissioning of gen-tie line would be similar to those previously discussed with respect to construction activities (see Table 4.12-6, above).

Indirect Effects

There are no indirect effects related to noise and vibration for decommissioning.

Mitigation Measures

Mitigation Measures NOI-1 and NOI-2, presented under Alternative 4, would ensure compliance with the Riverside County's noise ordinance and ensure no increase in ambient noise levels within JTNP boundaries from on-site construction activities. No additional mitigation is necessary.

Residual Impacts and Unavoidable Adverse Effects

Implementation of Alternative B, when considering both the solar facility and the gen-tie line, would result in a substantial increase in traffic noise levels above existing ambient noise levels along Kaiser Road north of Lake Tamarisk Road during construction and decommissioning, which would result in a temporary unavoidable adverse effect. No unavoidable adverse vibration effects would occur under Alternative B.

4.12.12 Alternative C – Separate Transmission Towers within Same ROW

The Alternative C gen-tie line would parallel the approved Desert Sunlight gen-tie line, and would be located on separate towers within the same ROW. The same number of towers in a nearly identical alignment to that of First Solar's towers would be constructed.

Direct Effects

Construction activity noise and vibration estimates presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative C because the Alternative C gen-tie line would parallel the approved Desert Sunlight gen-tie line and would require the same number of towers in a nearly identical alignment. However, under Alternative C the closest residence would be located slightly farther away than under Alternative B (600 feet vs. 500 feet). Therefore, noise and vibration effects resulting from the construction of the gen-tie line under Alternative C would be slightly reduced compared to those described under Alternative B.

Indirect Effects

There are no indirect effects related to noise and vibration for construction.

Operation and Maintenance

Direct Effects

Noise from Facility Operations. As discussed above for Alternative B, the gen-tie line would have no persistent operational noise generation, with the exception of corona noise, as routine transmission line inspection and maintenance activities would occur on an as needed basis. Southern California Edison has estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line ROW (CPUC 2006). Ambient noise levels during rainstorms often exceed this noise level, especially if the rain is accompanied by high winds. However, noise generated by rain and wind would likely mask corona noise generated by the transmission line.

Indirect Effects

There are no indirect effects related to noise and vibration for O&M.

Decommissioning

Direct Effects

Noise from Decommissioning Activities. Decommissioning of the gen-tie line under Alternative C would be identical to Alternative B. Noise effects from decommissioning activities for the gen-tie line would be similar to, but probably somewhat less than, those previously estimated for construction activities (see Table 4.12-5, above).

Noise from Traffic Associated with Decommissioning. Traffic volumes associated with decommissioning activities would likely be similar to traffic volumes associated with construction activities. Because decommissioning would occur at least 30 years in the future, it is likely that vehicle engine technology would be different from current technology. Engine technologies that do not rely on internal combustion engines would likely generate lower noise levels than those produced by current vehicles. This effect is already apparent with hybrid vehicles. Consequently, noise effects from traffic associated with decommissioning activities would likely be somewhat less than the noise levels previously estimated for construction-related traffic (see Table 4.12-3, above).

Ground Vibrations from Decommissioning Activity. Ground vibrations generated during decommissioning of gen-tie line would be similar to those previously discussed with respect to construction activities (see Table 4.12-6, above).

Indirect Effects

There are no indirect effects related to noise and vibration for decommissioning.

Mitigation Measures

Mitigation Measures NOI-1 and NOI-2, presented under Alternative 4, would ensure compliance with the Riverside County's noise ordinance and ensure no increase in ambient noise levels

within JTNP boundaries from on-site construction activities. No additional mitigation is necessary.

Residual Impacts and Unavoidable Adverse Effects

Implementation of Alternative C, when considering both the solar facility and the gen-tie line, would result in a substantial increase in traffic noise levels above existing ambient noise levels along Kaiser Road north of Lake Tamarisk Road during construction and decommissioning, which would result in a temporary unavoidable adverse effect. No unavoidable adverse vibration effects would occur under Alternative C.

4.12.13 Alternative D – Cross-Valley Alignment

Construction, operation, and maintenance of the gen-tie line under Alternative D would be identical to that described for Alternative B, except it would require slightly less temporary and permanent ground disturbance. However, because it would require new access routes for the transmission line, Alternative D would require about 3,700 cubic yards of aggregate.

Construction

Direct Effects

Construction activity noise and vibration estimates presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative D. However, under Alternative D the closest residence would be located farther away than under Alternative B (1,450 feet vs. 500 feet). Therefore, noise and vibration effects resulting from the construction of the gen-tie line under Alternative D would be slightly reduced compared to those described under Alternative B.

Indirect Effects

There are no indirect effects related to noise and vibration for construction.

Operation and Maintenance

Direct Effects

Noise from Facility Operations. As discussed above for Alternative B, the gen-tie line would have no persistent operational noise generation, with the exception of corona noise, as routine transmission line inspection and maintenance activities would occur on an as needed basis. Southern California Edison has estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line ROW (CPUC 2006). Ambient noise levels during rainstorms often exceed this noise level, especially if the rain is accompanied by high winds. However, noise generated by rain and wind would likely mask corona noise generated by the transmission line.

Indirect Effects

There are no indirect effects related to noise and vibration for O&M.

Decommissioning

Direct Effects

Noise from Decommissioning Activities. Decommissioning of the gen-tie line under Alternative D would be identical to Alternative B. Noise effects from decommissioning activities for the gen-tie line would be similar to, but probably somewhat less than, those previously estimated for construction activities (see Table 4.12-5, above).

Noise from Traffic Associated with Decommissioning. Traffic volumes associated with decommissioning activities would likely be similar to traffic volumes associated with construction activities. Because decommissioning would occur at least 30 years in the future, it is likely that vehicle engine technology would be different from current technology. Engine technologies that do not rely on internal combustion engines would likely generate lower noise levels than those produced by current vehicles. This effect is already apparent with hybrid vehicles. Consequently, noise effects from traffic associated with decommissioning activities would likely be somewhat less than the noise levels previously estimated for construction-related traffic (see Table 4.12-3, above).

Ground Vibrations from Decommissioning Activity. Ground vibrations generated during decommissioning of gen-tie line would be similar to those previously discussed with respect to construction activities (see Table 4.12-6, above).

Indirect Effects

There are no indirect effects related to noise and vibration for decommissioning.

Mitigation Measures

Mitigation Measures NOI-1 and NOI-2, presented under Alternative 4, would ensure compliance with the Riverside County's noise ordinance and ensure no increase in ambient noise levels within JTNP boundaries from on-site construction activities. No additional mitigation is necessary.

Residual Impacts and Unavoidable Adverse Effects

Implementation of Alternative D, when considering both the solar facility and the gen-tie line, would result in a substantial increase in traffic noise levels above existing ambient noise levels along Kaiser Road north of Lake Tamarisk Road during construction and decommissioning, which would result in a temporary unavoidable adverse effect. No unavoidable adverse vibration effects would occur under Alternative D.

4.12.14 Alternative E – New Cross-Valley Alignment

Construction, operation, and maintenance of Alternative E would be identical to that described for Alternative B, except for it would require slightly less temporary and permanent ground disturbance. However, because it would require new access routes for the transmission line, Alternative E would require about 3,700 cubic yards of aggregate.

Construction

Direct Effects

Construction activity noise and vibration estimates presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative E. However, under Alternative E the closest residence would be located farther away than under Alternative B (900 feet vs. 500 feet). Therefore, noise and vibration effects resulting from the construction of the gen-tie line under Alternative E would be slightly reduced compared to those described under Alternative B.

Indirect Effects

There are no indirect effects related to noise and vibration for construction.

Operation and Maintenance

Direct Effects

Noise from Facility Operations. As discussed above for Alternative B, the gen-tie line would have no persistent operational noise generation, with the exception of corona noise, as routine transmission line inspection and maintenance activities would occur on an as needed basis. Southern California Edison has estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line ROW (CPUC 2006). Ambient noise levels during rainstorms often exceed this noise level, especially if the rain is accompanied by high winds. However, noise generated by rain and wind would likely mask corona noise generated by the transmission line.

Indirect Effects

There are no indirect effects related to noise and vibration for O&M.

Decommissioning

Direct Effects

Noise from Decommissioning Activities. Decommissioning of the gen-tie line under Alternative E would be identical to Alternative B. Noise effects from decommissioning activities for the gen-tie line would be similar to, but probably somewhat less than, those previously estimated for construction activities (see Table 4.12-5, above).

Noise from Traffic Associated with Decommissioning. Traffic volumes associated with decommissioning activities would likely be similar to traffic volumes associated with construction activities. Because decommissioning would occur at least 30 years in the future, it is likely that vehicle engine technology would be different from current technology. Engine technologies that do not rely on internal combustion engines would likely generate lower noise levels than those produced by current vehicles. This effect is already apparent with hybrid vehicles. Consequently, noise effects from traffic associated with decommissioning activities would likely be somewhat less than the noise levels previously estimated for construction-related traffic (see Table 4.12-3, above).

Ground Vibrations from Decommissioning Activity. Ground vibrations generated during decommissioning of gen-tie line would be similar to those previously discussed with respect to construction activities (see Table 4.12-6, above).

Indirect Effects

There are no indirect effects related to noise and vibration for decommissioning.

Mitigation Measures

Mitigation Measures NOI-1 and NOI-2, presented under Alternative 4, would ensure compliance with the Riverside County's noise ordinance and ensure no increase in ambient noise levels within JTNP boundaries from on-site construction activities. No additional mitigation is necessary.

Residual Impacts and Unavoidable Adverse Effects

Implementation of Alternative E, when considering both the solar facility and the gen-tie line, would result in a substantial increase in traffic noise levels above existing ambient noise levels along Kaiser Road north of Lake Tamarisk during construction and decommissioning, which would result in a temporary unavoidable adverse effect. No unavoidable adverse vibration effects would occur under Alternative E.

4.12.15 Cumulative Effects

Cumulative noise or vibration effects would occur when multiple projects affect the same geographic areas at the same time or when sequential projects extend the duration of noise or vibration effects on a given area over a longer period of time. The factors of geographic scope and time frame for noise and vibration effects are shown in Table 4.12-7 and discussed below.

Table 4.12-7. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Noise and Vibration	0.5 mile from the area of noise generation.	Additive construction equipment noise	• Desert Sunlight Solar Farm Project • Silverado Power Solar Project • Desert Sunlight transmission line (Alternatives B and C) • Desert Center 50 Solar Project (Alternatives D) • Red Bluff Substation (Alternatives B through E) • I-10 (Alternatives B through E)

Geographic Scope

Noise. The noise effects of the proposed project and alternatives stem primarily from temporary construction activities. Because noise levels decline rapidly with distance from the noise source, the geographic scope of noise effects is limited to local areas. As demonstrated by the construction noise and traffic noise analyses presented previously, the geographic scope of potentially significant noise effects seldom extends more than 2,500 feet (0.5 mile) from the area of noise generation.

Vibration. The ground vibration effects of the proposed project and alternatives stem primarily from temporary construction activities. Ground vibrations dissipate more rapidly than airborne noise levels, limiting the geographic scope of ground vibration effects to the immediate vicinity of the vibration source. As demonstrated by the ground vibration analyses presented previously, the geographic scope of potentially significant ground vibrations extends no more than a few hundred feet from the source of the vibrations.

Cumulative Effects Analysis

There would be no cumulative noise or vibration effects under the No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) because the solar project (solar facility and gen-tie line) would not be constructed. Any future proposals for use of the site would be subject to separate environmental review. Alternative B would not contribute to cumulative noise effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Current ambient noise conditions represent the cumulative effect of noise generation on a local geographic scale. Except for the I-10 vicinity, existing noise levels in the immediate project vicinity are generally low. There are no known existing ground vibration issues in the project study area. Existing and foreseeable projects and facilities listed in Tables 4.1-1 and 4.1-2 are too far from the proposed solar facility area to create cumulative noise effects in combination with any of the solar facility action alternatives (Alternatives 4 through 7), with the exception of the Desert Sunlight Solar Farm Project (on-site and off-site impacts) located immediately adjacent to and north of the solar facility site and the Silverado Power Solar Project located one mile south of the solar facility site (off-site impacts only, as site is located outside geographic area considered for cumulative noise impacts). Alternative C would have the potential for cumulative site-related noise effects in combination with the Desert Sunlight transmission line, as C would use the same or a slightly wider ROW along the same route. Alternative D would pass through the Silverado Power Solar Project and the Desert Center 50 Solar Project sites. All gen-tie line alternatives (Alternatives C through E) connect to the Red Bluff Substation, which is associated with the Desert Sunlight Solar Farm Project. As such, these gen-tie line alternatives have the potential for cumulative site-related noise effects in combination with other projects occurring in the project vicinity.

Alternatives C through E all cross I-10 prior to entering the Red Bluff Substation, which is situated just south of I-10. Because there are no noise-sensitive receptors located close to the Red Bluff Substation, cumulative noise and vibration effects from the Red Bluff Substation in combination with gen-tie line construction activities and existing I-10 traffic would result in a minor noise effect. Furthermore, for the Desert Sunlight Project it was determined that construction of the solar facility, gen-tie line, and Red Bluff Substation would increase traffic volumes on I-10 by less than one percent, resulting in a cumulative CNEL increase of about 0.04 dBA (BLM 2011). Similarly, the DHSP solar facility and gen-tie line would have little effect on traffic noise along the I-10 (see Table 4.12-3). Thus, cumulative noise effects related to Alternatives C through E would not be substantial near the Red Bluff Substation. Again, Alternative B would not contribute to cumulative noise effects.

On-site cumulative noise effects would have the potential to occur as a result of the construction if the Desert Sunlight Solar Farm project were to occur at the same time as the DHSP. The construction for the Desert Sunlight Solar Farm Project began in September 2011 with full commercial operation expected by the first quarter of 2015 (First Solar 2011). This schedule would coincide with the DHSP construction. As such, both on-site and off-site (traffic noise) cumulative effects could occur. For on-site noise, the closest receptor to both projects is located 3,600 feet (0.68 mile) west from the Desert Sunlight Solar Farm project area and 8,300 feet (1.6 miles) northwest from the DHSP solar facility. As shown in Table 4.12-2, construction noise during the loudest phase of construction (array post installation) would result in noise levels of 51 dBA Lmax (1 hour) and a CNEL level of 46 dBA at 2,500 feet. At 5,000 feet (one doubling of distance), these noise levels would drop by 6 dB (per the fundamentals of stationary noise sources). The contribution from the DHSP by the time it reaches the closest receptor to both Desert Sunlight Solar Farm Project and DHSP (8,300 feet away) would be about 41 dBA Leq (1-hour maximum) and 36 dBA CNEL. If construction (array post installation) were to be occurring in the western portion of the Desert Sunlight Solar Farm project area at the same time as construction (array post installation) is occurring in the northwestern portion of the DHSP solar facility site, construction noise levels would then have the potential to combine. The Desert Sunlight Solar Farm project was estimated to result in noise levels of 48 dBA Leq (1 hour maximum) and less than 43 dBA CNEL at this same receptor. The combined effect of these two projects, under a conservative scenario, would increase noise levels by less than one decibel which would not be noticeable and not cumulatively substantial. Construction noise levels would remain within Riverside County's normally acceptable range for rural residential land uses (Table 3.12-2; up to 60 dBA CNEL). Furthermore, when construction is occurring within a quarter mile of an occupied residence (as identified at the time of construction) the hours of such activities would be limited through mitigation (Mitigation Measure NOI-1) such that noise standards established in local noise ordinances, specifically Riverside County Noise Ordinance No. 847, would be not be exceeded. In addition, noise levels within JTNP from on-site construction activities would be monitored and controlled so that cumulative noise levels remain at or below 35 dBA with implementation of Mitigation Measure NOI-2, thereby meeting the Park's stated goal of encouraging no increase in ambient noise levels within the Park from construction activities outside the Park.

Off-site cumulative noise effects would have the potential to occur as a result of the construction of the Desert Sunlight Solar Farm project and/or Silverado Power Solar Project if they were to occur at the same time as the DHSP. However, given its permitting status (notice of intent to prepare an EIR not yet released by the County, CEQANet 2012; and a plan of development not yet submitted to BLM for any gen-tie alignment) construction of the Silverado Power Solar Project is not anticipated to begin until 2015 or later and therefore, construction activities would not occur at the same time as the DHSP. For the Desert Sunlight Solar Farm project and the DHSP, construction traffic would be generated along I-10, SR-177 and Kaiser Road. Because construction of these two projects would be occurring at the same time, cumulative traffic noise effects could occur. Existing traffic volumes on I-10 (currently 21,000 to 23,000 vehicles per day with 40 percent truck traffic) would need to be doubled to cause even a 3 dBA increase in noise levels, which would not occur as a result of these two projects. Both individually and cumulatively the increase in traffic volume from these projects would have a negligible effect on traffic noise levels along I-10; therefore, cumulative effects would not be substantial.

Cumulative traffic noise along SR-177 and Kaiser Road in the Lake Tamarisk area were estimated, as shown in Table 4.12-8.

Table 4.12-8. Modeled 1-Hour Leq/CNEL Noise Levels from Cumulative Construction Traffic

Traffic Noise Source	Distance from Road Centerline (feet)	Existing 1-Hour Leq / CNEL (dBA)	Existing + Proposed Project + Desert Sunlight 1-Hour Leq / CNEL (dBA)	Change from Existing 1-Hour Leq / CNEL (dBA)
SR-177 South of Kaiser Road	50	70.9 / 72.0	71.6 / 73.0	0.7 / 1.0
	100	67.8 / 68.9	68.5 / 69.9	0.7 / 1.0
	250	63.8 / 64.9	64.5 / 65.9	0.7 / 1.0
	500	60.8 / 61.9	61.5 / 62.9	0.7 / 1.0
	750	59.1 / 60.1	59.8 / 61.	0.7 / 1.1
	1,000	57.8 / 58.9	58.5 / 59.9	0.7 / 1.0
Kaiser Road South of Lake Tamarisk	50	61.9 / 62.2	66.0 / 67.5	4.1 / 5.3
	100	58.8 / 59.1	62.9 / 64.4	4.1 / 5.3
	250	54.9 / 55.1	58.9 / 60.4	4.0 / 5.3
	500	51.8 / 52.1	55.9 / 57.4	4.1 / 5.3
	750	50.1 / 50.3	54.1 / 55.6	4.0 / 5.3
	1,000	48.8 / 49.1	52.9 / 54.4	4.1 / 5.3
Kaiser Road North of Lake Tamarisk	50	52.4 / 52.3	64.0 / 66.0	11.6 / 13.7
	100	49.3 / 49.3	60.9 / 62.9	11.6 / 13.6
	250	45.4 / 45.3	56.9 / 58.9	11.5 / 13.6
	500	42.3 / 42.3	53.9 / 55.9	11.6 / 13.6
	750	40.6 / 40.5	52.2 / 54.2	11.6 / 13.7
	1,000	39.3 / 39.3	50.9 / 52.9	11.6 / 13.6
Kaiser Road, Maximum Traffic Noise at JTNP Boundary	Joshua Tree NP	35.0 / 35.2	39.0 / 40.5	4.0 / 5.3

CNEL = community noise equivalent level (a 24-hour weighted average)
Source: See Appendix N noise calculations.

Along SR-177 south of Kaiser Road, the Desert Sunlight Solar Farm project would generate up to 225 AADT with 5.7 percent medium trucks and 9.5 percent heavy trucks (BLM 2011 – Appendix E2, Table E2-1, Alt 1&2, 2012). Combined with existing traffic and that generated by the DHSP (assuming peak construction period), noise levels would increase by about 0.7 dBA 1-hour Leq and 1 dBA CNEL from existing conditions, which would not be a noticeable increase. At 100 feet from the centerline of SR-177, CNEL levels would be within Riverside County's conditionally acceptable range for rural residential land uses (Table 3.12-2; 55-70 dBA CNEL) and at about 1,000 feet back within the normally acceptable range for rural residential land uses (Table 3.12-2; up to 60 dBA CNEL).

Along Kaiser Road south of Lake Tamarisk, the Desert Sunlight Solar Farm project would generate up to 222 AADT with 24.8 percent medium trucks and 21.5 percent heavy trucks (BLM 2011 – Appendix E2, Table E2-1, Alt 1&2, 2012). Combined with existing traffic and that generated by the DHSP (assuming peak construction period), noise levels would increase by about 4 dBA 1-hour Leq and 5 dBA CNEL from existing conditions, which would be a subtle, noticeable

increase over existing conditions. Along Kaiser Road north of Lake Tamarisk, the combination of Desert Sunlight Solar Farm project with existing traffic and traffic generated by the DHSP (assuming peak construction period) would result in a noise level increase of about 12 dBA 1-hour Leq and 14 dBA CNEL from existing conditions. This would result in a substantial increase over existing conditions and sound like a doubling of existing noise levels. At 50 feet from the centerline of Kaiser Road, CNEL levels would be within Riverside County's conditionally acceptable range for rural residential land uses (Table 3.12-2; 55-70 dBA CNEL) and at about 280 feet back within the normally acceptable range for rural residential land uses (Table 3.12-2; up to 60 dBA CNEL).

The common project roadway to JTNP is Kaiser Road (not including the I-10, where construction-related traffic would have little impact on traffic noise levels as indicated in Table 4.12-3). JTNP is located approximately 4.6 miles from Kaiser Road at its closest point south of Lake Tamarisk, and approximately 3.4 miles west of Kaiser Road at its closest point north of Lake Tamarisk. Ambient noise levels within JTNP are 35 dBA or less. As shown in Table 4.12-8, and assuming existing noise levels of 35 dBA at the Park boundary, the noise level increase within JTNP as a result of additional construction traffic along Kaiser Road, including noise from existing traffic to Lake Tamarisk would be noticeable (a 4-5 dBA increase).

The timing for approval and construction of the Desert Center 50 Solar is not known, but could potentially overlap with part of the construction period for the DHSP. As noted above, construction of the Silverado Power Solar Project is not anticipated to begin until 2015 or later; therefore, construction activities would likely not occur at the same time as the DHSP. Gen-tie line Alternatives C through E would cross these projects; however, construction would be moving linearly along the transmission line alignment and would not be in a given area for more than a few days to a few weeks. The probability of construction activities to be occurring at the same time and in close enough proximity (within 2,500 feet) to combine and result in a cumulative effect is low. A substantial cumulative noise effects from gen-tie construction would not occur.

Since the geographic scope of potential ground vibration effects is limited to a distance of a few hundred feet from the source of the vibrations, and no noise- or vibration-sensitive land uses are within that distance from both the DHSP and one or more of the other solar energy projects, no cumulative vibration effects from on-site construction activities would be expected to occur.

Due to the limited geographic scope of potential noise and ground vibration effects (as discussed above), operation of the proposed project would not contribute to adverse long-term increases in noise or vibration levels in the area, as operational noise levels are not cumulatively considerable. Because no substantial operational noise or vibration increases would result from the proposed project, it would be consistent with the local noise regulations.

4.12.16 CEQA Considerations

This section is included in this EIS for future use by CEQA Lead and Responsible agencies, and is not required under NEPA.

CEQA Significance Criteria

The significance criteria listed below were generated based on the Environmental Checklist Form in Appendix G of the CEQA Guidelines. They are used to determine whether the Proposed Action or alternatives would result in significant impacts under CEQA related to noise.

The proposed project and alternatives would result in a significant impact related to noise if they would:

NZ-1 Generate noise levels that pose a risk of hearing damage for persons living or working at off-site locations (90 dBA as a time-weighted 8-hour average or peak noise levels above 115 dBA).

NZ-2 Expose residents or visitors to on-site noise levels that exceed land use compatibility standards or criteria established in the noise element of the Riverside County General Plan (see Table 3.12-2 in the Noise and Vibration section of Chapter 3).

NZ-3 Cause off-site noise levels to exceed land use compatibility standards or criteria established in the local general plan (see Table 3.12-2 in the Noise and Vibration section of Chapter 3).

NZ-4 Create a long-term impact on noise-sensitive land uses by increasing long-term ambient CNEL levels by 10 dBA or more, even if the resulting noise level is below applicable land use compatibility standards.

NZ-5 Generate noise levels that exceed standards established by local ordinances or by State or federal agency regulations (see Table 3.12-4 and associated text discussions in the Noise and Vibration section of Chapter 3).

NZ-6 Expose people to excessive ground-borne vibration or ground-borne noise levels (see Table 3.12-5 in the Noise and Vibration section of Chapter 3).

NZ-7 Generate ground-borne vibration levels that pose a risk of cosmetic damage to on-site or off-site buildings (see Table 3.12-5 in the Noise and Vibration section of Chapter 3).

For the DHSP, the following criteria were determined to be inapplicable or to result in no impact:

- Expose on-site workers to noise levels that exceed occupational safety standards (90 dBA as a time-weighted 8-hour average or peak noise levels above 115 dBA).
- Expose residents to airport or private airstrip-related noise levels above a CNEL of 65 dBA.

Occupational noise exposure is governed by federal and State regulations. The California Divisions of Occupational Safety and Health (Cal/OSHA) administers industrial safety regulations in California. Cal/OSHA regulations establish a time-weighted noise exposure limit of 90 dBA averaged over 8 hours (California Code of Regulations, Title 8, Article 105). Noise source controls, administrative procedures, or worker hearing protection must be provided if worker noise exposure would exceed the 90 dBA limit. The project owner would be expected to follow Cal/OSHA requirements for construction worker noise exposure. Consequently, worker noise exposure issues are not discussed further under any of the alternatives.

There are two private airstrips in the general project vicinity. Eagle Mountain Airstrip is about 3.6 miles northwest of the proposed solar facility site and Desert Center Airport is about 3 miles south-southeast of the project site. Both airstrips have very low use levels. Desert Center Airport used to be a public airfield, but has been sold to the developer of the Chuckwalla Valley Raceway. The Desert Center Airport is now operated as a private airstrip. The Riverside County Airport Land Use Compatibility Plan shows that the 55 dBA CNEL contour for the Desert

Center Airport is confined to the immediate runway area (Riverside County 2004 – Map DC-3). No airfield noise contours have been developed for the Eagle Mountain Airstrip, but the comparable low use values for that facility suggest that the 55 dBA CNEL noise contour would similarly be limited to the immediate runway area. None of the project alternatives would create residential land uses, and all project features are outside the airfield properties. Consequently, airport-related noise issues are not discussed further under any of the alternatives.

CEQA Significance Determination

Alternative 1. Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed at the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, impacts from project-related noise would not occur.

Alternative 2. Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

Alternative 3. Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

Alternative 4. Construction activities would generate higher noise levels than construction-related traffic, operational activities, or decommissioning activities at the solar facility site. Maximum 1-hour Leq noise levels associated with construction activities would be about 83 dBA at the solar facility property line (100 feet from construction activity) and about 43 dBA at the nearest identified occupied residence (6,500 feet away). Hearing protection standards adopted by Cal/OSHA are an 8-hour time-weighted average of 90 dBA and a peak noise level of 115 dBA. Noise from construction, operation, and decommissioning of the solar facility under Alternative 4 would not pose a risk of hearing damage at off-site locations, and thus would be a less-than-significant impact (CEQA significance criterion NZ-1).

The solar facility site would not contain any noise-sensitive land uses. Maximum on-site CNEL increments from construction activity would be about 78 dBA at a distance of 100 feet from active construction operations, which is within Riverside County's conditionally acceptable range for industrial and utility land uses (see Table 3.12-2; 70-80 dBA CNEL). Noise levels generated during operations and decommissioning activities would be less than those estimated for construction. Consequently, construction, operation, and decommissioning of the solar facility site would not create on-site noise-related land use compatibility problems, and would have a less-than-significant impact (CEQA significance criterion NZ-2).

For the residence closest to the solar farm site (located 6,500 feet away), maximum CNEL increments from on-site construction activity would be less than 46 dBA (see Table 4.12-2, array post installation), which is within Riverside County's normally acceptable range for rural residential land uses (see Table 3.12-2; up to 60 dBA CNEL). JTNP is located a minimum of 1.8 miles from the project site, where ambient noise levels are expected to be 35 dBA or less. The NPS has provided a performance standard for noise mitigation limiting noise levels at the Park boundary from the project to 35 dBA. On-site construction noise levels at JTNP would be below 35 dBA with implementation of Mitigation Measure NOI-2.

Construction-related traffic would increase noise levels along SR-177 and Kaiser Road. Along SR-177, existing noise levels of 72 dBA CNEL are already above the Riverside County's conditionally acceptable range for rural residential land uses (see Table 3.12-2; 55-70 dBA CNEL). The addition of the proposed project would increase noise levels by about less than 1 dBA, which would not be noticeable and not significant. Along Kaiser Road south of Lake Tamarisk Road there would be a noticeable increase in traffic noise levels (3-4 dBA increase); however, along Kaiser Road north of Lake Tamarisk Road there would be a substantial increase (>10 dBA increase). The maximum noise levels at 50 feet from the centerline of Kaiser Road north of Lake Tamarisk would be 66 dBA CNEL, and south of Lake Tamarisk would be 64 dBA CNEL. Therefore, at 50 feet from the centerline of Kaiser Road, CNEL levels would be within Riverside County's conditionally acceptable range for rural residential land uses (Table 3.12-2; 55-70 dBA CNEL) and at 180 feet back within the normally acceptable range for rural residential land uses (Table 3.12-2; up to 60 dBA CNEL).

Ambient noise levels within JTNP are expected to be 35 dBA or less, and the NPS has provided a performance standard for noise mitigation limiting noise levels at the Park boundary from the project to 35 dBA. The closest project roadway to JTNP is Kaiser Road (not including the I-10, where construction-related traffic would have little impact on traffic noise levels as indicated in Table 4.12-3). JTNP is located approximately 4.6 miles from Kaiser Road (at the closest point south of Lake Tamarisk) and approximately 3.4 miles west of Kaiser Road (at the closest point north of Lake Tamarisk). As shown in Table 4.12-3, and assuming a performance standard of 35 dBA at the Park boundary, the noise level increase within JTNP resulting from the additional construction traffic along Kaiser Road including noise from existing traffic to Lake Tamarisk would be noticeable (a 3-4 dBA increase), but not significant.

Operational noise levels from the solar facility would also be within Riverside County's normally acceptable range for rural residential land uses at the property line. Noise from decommissioning activities would be similar to but somewhat less than noise from construction activities. Consequently construction, operation, and decommissioning of the solar facility site would not create noise-related land use compatibility problems at off-site locations, and would have a less-than-significant impact (CEQA significance criterion NZ-3).

While overall construction activities would last for about two years, the majority of on-site construction activities at the solar facility site would be well over 6,500 feet from the nearest residence east-southeast of the site and 1.5 miles from other identified residences. Even then, only a small portion of the overall construction activity would occur within 6,500 feet of the nearest residence. Consequently, on-site construction activities for the solar farm would not constitute long-term sources of noise level increases at noise-sensitive land uses. Construction-related traffic would increase CNEL levels along Kaiser Road for a period of about two years.

CNEL levels would be increased by up to 11.5 dBA, which would be a significant increase over ambient noise conditions resulting in a significant and unavoidable impact (CEQA significance criterion NZ-4). Operational noise levels from the solar facility would not increase existing CNEL levels at any noise-sensitive land uses. Consequently, operational noise levels from the solar facility would be a less-than-significant (CEQA significance criterion NZ-4). Decommissioning noise levels would be similar to but somewhat less than noise levels associated with construction activities. Consequently, noise from solar facility decommissioning would be a less-than-significant impact (CEQA significance criterion NZ-4).

Construction and decommissioning activities for the solar facility site when located near inhabited dwellings would be limited to daytime hours pursuant to Mitigation Measure NOI-1 and consistent with the Riverside County noise ordinance (beginning at 7:00 a.m. during most of the year, and perhaps starting as early as 6:00 a.m. during the summer months, and ending no later than 6:00 p.m.). Consequently, construction and decommissioning activities would be exempt from the Riverside County noise ordinance and noise from construction activity at the solar facility site would be a less-than-significant impact (CEQA significance criterion NZ-5). The on-site substation would be located over 1.25 miles from the closest existing residence and over 3.5 miles east from JTNP. Under gen-tie Alternative E (New Cross-Valley Alignment), the substation would be located in the southern-middle portion of the site; the closest existing residence would be approximately 2 miles away and JTNP would be approximately 3 miles away. Under either substation location scenario, daytime noise generation from the on-site substation is expected to be 40 dBA at 1,535 feet (BLM 2011), and would be well below 35 dBA at the boundary to JTNP. Nighttime noise generation from the on-site substation is expected to be 40 dBA at a distance of 200 feet and 35 dBA at a distance of 353 feet (BLM 2011), and again would be well below 35 dBA at the boundary of JTNP. These noise levels would meet the Riverside County stationary source exterior noise limit of 65 dBA, 10-minute Leq; the Riverside County Ordinance No. 847, which limits noise at rural residential properties to 45 dBA Lmax; and meet the JTNP's goal to not increase ambient noise levels within the Park as a result of construction activities outside the Park. Therefore, operational noise levels at the solar facility site would comply with local standards and impacts would be less than significant (CEQA significance criterion NZ-5).Ground vibrations from construction or decommissioning activities would not be perceptible at off-site locations. Operational activities at the solar facility would not generate meaningful ground vibrations. Consequently, ground vibration impacts from solar facility construction, operation, and decommissioning would be less than significant (CEQA significance criterion NZ-6).

Ground vibrations from construction or decommissioning activities would pose no risk of cosmetic damage to any existing buildings. Operational activities at the solar facility would not generate meaningful ground vibrations. Consequently, ground vibration impacts from solar facility construction, operation, and decommissioning would be less than significant (CEQA significance criterion NZ-7).

On-site construction noise from the proposed project would not be cumulatively considerable; however, off-site (traffic) construction noise would be significant, and when combined with the Desert Sunlight Solar Farm Project would result in a cumulatively significant and unavoidable impact. Noise impacts related to the operations of the proposed project and vibration impacts would not be cumulatively considerable and would not result in significant cumulative impacts.

Alternative 5. Under Alternative 5 the solar facility site would be constructed the same as Alternative 4, however, project components would be excluded from the WHMA. This represents a very small portion of the site, in an area located away from any identified residences. Therefore, noise and vibration impacts and CEQA significance conclusions for criteria NZ-1 through NZ-7 regarding construction, operation, and decommissioning would essentially be the identical to Alternative 4, discussed above. Cumulative impacts would also be identical to Alternative 4.

Alternative 6. Similar to Alternative 5, Alternative 6 would also develop a slightly smaller area of the solar facility site than proposed under Alternative 4. The area to be developed continues to be those areas located nearest identified residences. Furthermore, construction activities would occur on the same schedule as for Alternative 4 and would require the same types of equipment. The size of the area disturbed on a given day would be smaller under Alternative 6 than under Alternatives 4 and 5. While total numbers of some equipment items would be less under Alternative 6 than under Alternatives 4 or 5, similar types and numbers of equipment items would typically be operating in proximity under Alternatives 4, 5, and 6. For noise analysis purposes, it has been assumed that the number and types of equipment operating in proximity for Alternative 6 would be the same as analyzed for Alternative 4. Similarly, operational noise under Alternative 6 would be essentially the same as that discussed for Alternative 4. Therefore, noise and vibration impacts and CEQA significance conclusions for criteria NZ-1 through NZ-7 regarding construction, operation, and decommissioning would be identical to Alternative 4, discussed above. Cumulative impacts would also be identical to Alternative 4.

Alternative 7. Similar to Alternative 6, Alternative 7 would also develop a slightly smaller area of the solar facility site than proposed under Alternative 4. The area to be developed continues to be those areas located nearest identified residences. Furthermore, construction activities would occur on the same schedule as for Alternative 4 and would require the same types of equipment. The size of the area disturbed on a given day would be smaller under Alternative 7 than under Alternatives 4 and 5. While total numbers of some equipment items would be less under Alternative 7 than under Alternatives 4 or 5, similar types and numbers of equipment items would typically be operating in proximity under Alternatives 4, 5, and 7. For noise analysis purposes, it has been assumed that the number and types of equipment operating in proximity for Alternative 7 would be the same as analyzed for Alternative 4. Similarly, operational noise under Alternative 7 would be essentially the same as that discussed for Alternative 4. Therefore, noise and vibration impacts and CEQA significance conclusions for criteria NZ-1 through NZ-7 regarding construction, operation, and decommissioning would be identical to Alternative 4, discussed above. Cumulative impacts would also be identical to Alternative 4.

Alternative A. Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, no noise or vibration impacts under criteria NZ-1 through NZ-7 related to construction, operations and maintenance, or decommissioning would occur. Alternative A would not contribute to cumulative impacts.

Alternative B. Construction activities would generate higher noise levels than construction-related traffic, operational activities, or decommissioning activities for the gen-tie line. Maximum 1-hour Leq noise levels associated with construction activities would be 84 dBA at a distance of 100 feet from active construction work areas and about 69 dBA at the nearest existing residences (500 feet away). Maximum average noise levels over a construction day would be 80

dBA at a distance of 100 feet from active construction work areas and about 65 dBA at the nearest residences (500 feet away). Hearing protection standards adopted by Cal/OSHA are an 8-hour time-weighted average of 90 dBA and a peak noise level of 115 dBA. Noise from construction, operation, and decommissioning of the gen-tie line under Alternative B would not pose a risk of hearing damage at off-site locations, and thus would be a less-than-significant impact (CEQA significance criterion NZ-1).

The gen-tie line corridor itself would not contain any noise sensitive land uses. Maximum CNEL increments from construction activities would be about 77 dBA at the edge of the gen-tie line corridor (100 feet distance), which is within Riverside County's conditionally acceptable range for industrial and utility land uses (see Table 3.12-2; 70-80 dBA CNEL). There would be no persistent operational noise from the gen-tie line, with the exception of corona noise. Southern California Edison has estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line ROW (CPUC 2006). These noise levels are within Riverside County's normally acceptable range for industrial and utility land uses. Noise from decommissioning activities would be similar to but somewhat less than noise from construction activities. Consequently construction, operation, and decommissioning of the gen-tie line under Alternative B would not create on-site noise-related land use compatibility problems, and would have a less-than-significant impact (CEQA significance criterion NZ-2).

For the residences closest to the gen-tie line corridor (500 feet away), maximum CNEL increments from construction activities would be about 62 dBA, which is within Riverside County's conditionally acceptable range for rural residential land uses (see Table 3.12-2; 55-70 dBA CNEL). JTNP is located 3.4 miles west of the Alternative B gen-tie alignment, where ambient noise levels are expected to be 35 dBA or less. The NPS has provided a performance standard for noise mitigation limiting noise levels at the Park boundary from the project to 35 dBA. On-site construction noise levels at JTNP would be below 35 dBA with implementation of Mitigation Measure NOI-2.

Construction activities are expected to last about twelve months. During that time, construction activity would advance in a linear fashion along the 12.1-mile transmission line corridor. Construction-related traffic would increase noise levels along SR-177 and Kaiser Road. Along SR-177, existing noise levels of 72 dBA CNEL are already above Riverside County's conditionally acceptable range for rural residential land uses (see Table 3.12-2; 55-70 dBA CNEL). The addition of the proposed project (including the gen-tie line) would increase noise levels by less than 1 dBA, which would not be noticeable and not significant. Along Kaiser Road south of Lake Tamarisk Road there would be a noticeable increase in traffic noise levels (3-4 dBA increase); however, along Kaiser Road north of Lake Tamarisk Road there would be a substantial increase in traffic noise levels (>10 dBA increase). The maximum noise levels at 50 feet from the centerline of Kaiser Road north of Lake Tamarisk would be 66 dBA CNEL, and south of Lake Tamarisk would be 64 dBA CNEL. Therefore, at 50 feet from the centerline of Kaiser Road, CNEL levels would be within Riverside County's conditionally acceptable range for rural residential land uses (Table 3.12-2; 55-70 dBA CNEL) and at 180 feet back within the normally acceptable range for rural residential land uses (Table 3.12-2; up to 60 dBA CNEL).

The closest project roadway to JTNP is Kaiser Road (not including the I-10, where construction-related traffic would have little impact on traffic noise levels as indicated in Table 4.12-3). JTNP is located approximately 4.6 miles from Kaiser Road at its closest point south of Lake Tamarisk,

and approximately 3.4 miles west of Kaiser Road at its closest point north of Lake Tamarisk. Ambient noise levels within JTNP are expected to be 35 dBA or less. As shown in Table 4.12-3, and assuming existing noise levels of 35 dBA at the Park boundary, the noise level increase within JTNP resulting from the additional construction traffic along Kaiser Road including noise from existing traffic to Lake Tamarisk would be noticeable (a 3-4 dBA increase), but not significant.

There would be no persistent operational noise from the gen-tie line, with the exception of corona noise. Southern California Edison has estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line ROW (CPUC 2006). The closest residences are located 500 feet away, such that corona noise would be indiscernible from background ambient noise. These noise levels are also within Riverside County's normally acceptable range for rural residential land uses (see Table 3.12-2; up to 60 dBA CNEL). Noise from decommissioning activities would be similar to but somewhat less than noise from construction activities. Consequently construction, operation, and decommissioning of the gen-tie line under Alternative B would not create noise-related land use compatibility problems at off-site locations, and would have a less-than-significant impact (CEQA significance criterion NZ-3).

Construction activities are expected to last about twelve months. During that time, construction activity would advance in a linear fashion along the 12.1-mile transmission line corridor. Consequently, construction activity would be near any given location for only a few weeks of the overall construction period. Consequently, on-site construction activities for the gen-tie line under Alternative C would not constitute long-term sources of noise level increases at noise-sensitive land uses (CEQA significance criterion NZ-4). Construction-related traffic (solar facility and gen-tie line) would increase CNEL levels along Kaiser Road for a period of about two years. CNEL levels would be increased by up to 11.5 dBA, which would be a significant increase over ambient noise conditions resulting in a significant and unavoidable impact (CEQA significance criterion NZ-4). The gen-tie line would have no persistent operational noise generation, with the exception of corona noise. Southern California Edison has estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line ROW (CPUC 2006). Ambient noise levels during rainstorms often exceed this noise level, especially if the rain is accompanied by high winds. The closest residences are located 500 feet away, such that corona noise would be indiscernible from background ambient noise; operational noise impacts would be less than significant (CEQA significance criterion NZ-4). Decommissioning noise levels would be similar to but somewhat less than noise levels associated with construction activities. Consequently, noise from decommissioning the gen-tie line would result in a less-than-significant impact (CEQA significance criterion NZ-4).

Construction activity for the gen-tie line under Alternative B would be limited to daytime hours when located near inhabited dwellings pursuant to Mitigation Measure NOI-1 and consistent with the Riverside County noise ordinance (beginning at 7:00 a.m. during most of the year, and perhaps starting as early as 6:00 a.m. during the summer months, and ending no later than 6:00 p.m.). Consequently, construction activities would be exempt from the Riverside County noise ordinance. Implementation of Mitigation Measure NOI-2 would also ensure that the JTNP's goal to not increase ambient noise levels within the Park as a result of on-site construction activities outside the Park would be met. Therefore, noise impacts from construction activities along the gen-tie line would be less than significant (CEQA significance criterion NZ-5).

Ground vibrations from construction or decommissioning activities would not be perceptible at off-site locations. Operational activities at the gen-tie line would not generate meaningful ground vibrations. Consequently, ground vibration impacts from gen-tie line construction (stringing only under Alternative B), operation, and decommissioning would be less than significant (CEQA significance criterion NZ-6).

Ground vibrations from construction or decommissioning activities would pose no risk of cosmetic damage to any existing buildings. Operational activities at the gen-tie line would not generate meaningful ground vibrations. Consequently, ground vibration impacts from gen-tie line construction, operation, and decommissioning would be less than significant (CEQA significance criterion NZ-7).

Alternative B would not contribute to cumulative noise effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Alternative C. Construction activity noise and vibration estimates presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative C. However, under Alternative C the closest residence would be located farther away than under Alternative B (600 feet vs. 500 feet). Therefore, noise and vibration impacts resulting from the construction of the gen-tie line under Alternative C would be slightly reduced compared to those described under Alternative B. Impact conclusions would be identical to Alternative B for criteria NZ-1 through NZ-7. Cumulative on-site construction noise, which includes the solar facility and gen-tie line, from the proposed project would not be cumulatively considerable; however, off-site (traffic) construction noise would be significant, and when combined with the Desert Sunlight Solar Farm project would result in a cumulatively significant and unavoidable impact. Noise impacts related to the operations of the gen-tie line and vibration impacts would not be cumulatively considerable and would not result in significant cumulative impacts.

Alternative D. Construction activity noise and vibration estimates presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative D. However, under Alternative D the closest residence would be located farther away than under Alternative B (1,450 feet vs. 500 feet). Therefore, noise and vibration impacts resulting from the construction of the gen-tie line under Alternative D would be slightly reduced compared to those described under Alternative B. Impact conclusions would be identical to Alternative B for criteria NZ-1 through NZ-7. Cumulative impacts would also be identical to Alternative C.

Alternative E. Construction activity noise and vibration estimates presented previously for the gen-tie line under Alternative B would apply equally to construction activity under Alternative E. However, under Alternative E the closest residence would be located farther away than under Alternative B (900 feet vs. 500 feet). Therefore, noise and vibration impacts resulting from the construction of the gen-tie line under Alternative E would be slightly reduced compared to those described under Alternative B. Impact conclusions would be identical to Alternative B for criteria NZ-1 through NZ-7. Cumulative impacts would also be identical to Alternative C.

4.13 PUBLIC HEALTH AND SAFETY

4.13.1 Methodology for Analysis

County maps were reviewed to determine the proposed project's proximity to schools and airports. In addition, the risk of fire was evaluated based on hazard maps and assessments provided in the County of Riverside General Plan (2003). The County of Riverside General Plan was also reviewed for requirements for Emergency Response Plans, hazard management plans, and wildfire potential. A contaminated sites database search was performed in 2010 for the adjacent Desert Sunlight Solar Farm (DSSF) project (incorporated by reference in Section 1.11), and the area of inquiry included the site of the proposed project and alternatives.

4.13.2 Applicant Measures

The following Applicant Measures (AMs) have been incorporated as design features of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project. In some cases, mitigation measures further clarify or expand on AM reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures imposed and the following AMs, the mitigation measures take precedence.

AM HAZ-1 **Spill containment and clean-up kits.** Spill containment and clean-up kits shall be kept on site. Appropriate spill containment and clean-up kits shall be kept on site during construction and maintained during the operation of the Solar Farm and Gen-Tie Line.

AM HAZ-2 **Hazardous Materials Management Plan**. In accordance with the Emergency Planning & Community Right to Know Act, the Applicant shall supply the local emergency response agencies with a Hazardous Materials Management Plan and an associated emergency response plan and inventory specific to the site. The Applicant shall prepare the plan for approval by the BLM and review and comment by the County of Riverside. The Applicant shall be responsible for implementing the approved plan.

AM HAZ-3 **Best Management Practices (BMPs) for hazardous materials**. During construction of the solar facility and gen-tie line, BMPs for handling, storing, and disposing of hazardous materials and waste shall be followed.

AM HAZ-4 **Spill Prevention Control and Countermeasures (SPCC) Plan**. A SPCC Plan will be developed and implemented that would identify primary and secondary containment for oil products stored on site as well as training in spill management in the event of an unexpected release. The Applicant shall prepare the plan for approval by the BLM. The Applicant shall be responsible for implementing the approved plan.

AM HAZ-5 **Environmental Health and Safety Plan**. The Applicant shall develop an Environmental Health and Safety Plan for the construction and operation of the project to ensure it includes all activities and compliance with all local, state and federal regulatory requirements. Illness and Injury Prevention Programs will be developed for construction and operation. The Applicant shall prepare the plan for

approval by the BLM. The Applicant shall be responsible for implementing the approved plan.

AM HAZ-6 **Emergency Response and Inventory Plan**. The Applicant shall provide the County of Riverside with a project-specific Emergency Response and Inventory Plan before construction begins. The Applicant shall prepare the plan for approval by the BLM and review and comment by the County of Riverside. The Applicant shall be responsible for implementing the approved plan.

AM HAZ-7 **Fire Protection and other requirements**. Project facilities will be designed, constructed, and operated in accordance with applicable fire protection and other environmental, health and safety requirements. In compliance with County of Riverside requirements, a project-specific fire prevention plan for both construction and operation of the solar facility and gen-tie line will be completed prior to initiation of construction. The fire protection plan will be approved by the BLM and provided to Riverside County for review and comment.

AM HAZ-8 **Fire Prevention Plan**. A project-specific fire prevention plan will be in place during construction, operation and decommissioning of the project. This plan will comply with applicable County of Riverside regulations and would be coordinated with the BLM Fire Management Officer and the local Fire Department in the Chuckwalla Valley at Tamarisk Park.

AM HAZ-9 **Emergency Response Plan**. An emergency response plan and site security plan will be completed for the project facilities by qualified professionals. These plans will be developed in accordance with the BLM requirements

AM HAZ-10 **Decommissioning Plan**. When permanent closure is appropriate, a decommissioning plan would be developed and submitted to the BLM for review and approval. The following strategy would be taken:

- Analyze alternatives other than full restoration of the site (for instance, removal of old facilities and upgrading to newer solar technology)
- Use industry standard demolition means and methods to decrease personnel and environmental safety exposures by minimizing time and keeping personnel from close proximity to actual demolition activities to the extent practical
- Plan components of decommissioning to ensure personnel and environmental safety are maintained while efficiently completing the work
- Provide for recycling the components of the plant: metal, panels, concrete; and proper disposal of all other materials
- Remove all residual materials and chemicals from the site prior to demolition for reuse at other facilities or disposal at licensed facilities
- Demolition of below-ground facilities to a depth required for restoration of the native habitat
- Soils clean-up, if needed, particularly at locations where hazardous materials were used or stored to ensure that clean closure is achieved

Restore the lines and grades in the disturbed area to match the natural gradients of the site and re-establish native vegetation in the disturbed areas

4.13.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan. Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects from the project would not occur.

4.13.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Plan. It is possible that, as a result of the CDCA Plan amendment, that in the future another solar energy generation project could be proposed with impacts similar to the DHSP, however, such impacts are speculative at this time, and no effects from the DHSP would occur.

4.13.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.13.6 Alternative 4 – Proposed Solar Project

Construction

Construction of Alternative 4 would require clearance of 1,208 acres. Development of the solar facility site is described in Section 2.4 (Alternative 4). In addition to the solar array, other permanent land uses include the operation & maintenance (O&M) facilities, on-site substation and switchyard.

Direct Effects

Hazardous Materials. Construction of Alternative 4 would require the use, storage, and disposal of some hazardous and potentially hazardous materials, such as those shown in Table 4.13-1. Hazardous or flammable materials used during construction would consist primarily of small volumes of petroleum hydrocarbons and their derivatives (e.g., fuels, oils, lubricants, and solvents) required for the operation of construction equipment. These materials would be those

routinely associated with the operation and maintenance of heavy construction equipment or other support vehicles, such as gasoline, diesel fuels, and hydraulic fluids. Specific hazardous materials that would be transported to the site and be present on site during construction are listed in Table 4.13-1. Also during the construction phase, large quantities of transformer oil would be transported to the site for use in the substation and power block transformers. Hazardous materials are discussed in more detail in Sections 3.21 and 4.21 (Solid and Hazardous Wastes).

Table 4.13-1. Hazardous Materials/Petroleum Products Stored on Site During Construction

Hazardous Material	Use
Diesel Fuel	Construction Equipment and Vehicles
Gasoline	Construction Equipment and Vehicles
Motor Oil	Construction Equipment and Vehicles
Hydraulic Fluids and Lubricating Oils	Construction Equipment and Vehicles
Solvents and Adhesives	PV Module Assembly
Soil Stabilizers	Roads and PV Assembly Areas
Mineral Oil	Transformers
BLM-Approved Herbicide	On an As-Needed Basis for Invasive Weeds
Batteries, paints, thinners, and cleaning solvents	Construction Equipment and Vehicles

The DHSP may use a variety of PV technologies, including copper indium gallium cyanide panels, which are manufactured using the toxic elemental metal cadmium. Chemicals within PV modules are highly stable; even if the modules become broken or damaged during construction, these substances would not mobilize into the environment except under extremely rare conditions. A fire at the Alternative 4 site during construction could release chemicals from installed PV panels; however, fires are unlikely to occur because of the lack of fuel to support a sustained wildfire. Grass fires are the most likely fire exposure for ground-mounted PV systems, and these fires tend to be short-lived. As a result, these fires are unlikely to expose PV modules to prolonged fire conditions or to temperatures high enough to volatilize panel constituents. Mitigation Measure (MM) FIRE-1 would also reduce potential effects from related fire risks by requiring the development of a project specific Fire Prevention Plan.

In order to control weeds, the proposed project would utilize BLM-approved herbicides as appropriate. As described in Chapter 1, the DHSP EIS is tiered to the BLM's 2007 *Vegetation Treatments Using Herbicide Programmatic Final Environmental Impact Statement* (Herbicide PFEIS). The proposed project would use only the approved herbicides included in Table 2 (Herbicide Application Matrix) in the Integrated Weed Management Plan for the DHSP included in Appendix C.10. Only application methods addressed in the Herbicide PFEIS would be used and all use would be in accordance with U.S. EPA label instructions and would be overseen by a certified herbicide applicator. MM PHS-9 (use licensed herbicide applicator) includes specific guidelines for herbicide applicators and herbicide application. By complying with the measures and standard operating procedures in the Herbicide PFEIS and MM PHS-9, the use of herbicides for the proposed project would not adversely affect public health and safety. The project operator would be required to strictly adhere to all relevant regulations regarding handling hazardous or potentially hazardous materials. In addition, MM PHS-6 (proper disposal or recycling of PV panels and other infrastructure) would ensure that project components are

disposed of in a manner that does not pose risks to human health or the environment. Therefore, the use of PV panels and other project components would not have any adverse, unavoidable effects on public health and safety.

Existing Contamination. Alternative 4 would not mobilize existing contaminants in groundwater or soil, or expose workers to contaminated or hazardous materials at levels in excess of those permitted by federal and state law. There are no known previously contaminated sites of concern located in the project study area. The Phase I Environmental Site Assessment for the DSSF project, located just north of the solar facility site, indicates that the entire Chuckwalla Valley area was historically used as a military training facility, and that there is potential for munitions and explosives of concern (MEC) to be present on portions of the site. As a result of historical military training activities associated with Desert Training Center/California-Arizona Maneuver Area, there is also the potential for MEC to occur on portions of the Alternative 4 footprint. Project construction personnel could sustain injuries if MECs were encountered on the project site during construction. MM PHS-8 (munitions plan) would reduce impacts from personnel encountering MEC during construction by requiring the project owner to gather available information on potential onsite MECs and ensuring that all construction workers receive MEC-related safety training.

Airports. Alternative 4 would have no aboveground structures that would increase safety hazards to the two private air strips. Therefore, construction of the project would not create safety hazards for the one small private air strip or the special use airport in the vicinity. No effects would occur.

Indirect Effects

Emergency Response. Because there is so little development in the area currently, construction of Alternative 4 has the potential to overburden existing emergency response capacity and impair implementation of County of Riverside's Emergency Operations Plan (Riverside 2006). The nearest fire station to Alternative 4 is Lake Tamarisk, which has only four staff (Baker 2011). MM PHS-4 (Environmental Health and Safety Plan) includes development of injury prevention programs and training that would reduce effects related to emergency response. In addition, MM PHS-5 (Emergency Response and Inventory Plan) and MM FIRE-1 would ensure that project personnel are trained to appropriately report and respond to emergencies. MM PHS-7 requires the project owner to create a fire services agreement with the Riverside County Fire Department/CAL FIRE and BLM in order to ensure adequate staffing or volunteers to respond to emergencies. These measures would ensure that Alternative 4 would not have unavoidable adverse effects related to emergency response.

Operation and Maintenance

Operation and maintenance activities include vegetation treatment for removal of weeds, torque electrical fitting, cleaning switch gear, calibration of protective relays, fire protection system test and annual certification, fuse swapping, and testing ground fault detection and power quality as described in Section 2.4.5.

Direct Effects

Hazardous Materials/Existing Contamination. During the operation and maintenance phase of the project, fewer hazardous materials would be used than during construction, but the types of hazardous materials would be the same. Similar to the construction phase of the project, the operational phase would involve some risk of exposing workers or the public to hazardous materials. With the implementation of MM PHS-1 through MM PHS-6 (Hazardous Materials Management Plan, BMPs for hazardous materials, SPCC Plan, Environmental Health and Safety Plan, Emergency Response and Inventory Plan, Recycling and Disposal of Panels), there would be no unavoidable adverse effects on public health and safety.

Airports. Alternative 4 would not have aboveground structures that would increase the safety hazards to the private air strip or the special use airport. Operation of the project would not impact either the private air strip or the special use airport. No adverse effects would occur.

Physical Hazards to Personnel and the Public. The Alternative 4 site is not subject to substantial flooding that could damage panels and result in a public safety hazard. As discussed in Section 4.20, Alternative 4 is not located on a FEMA 100-year floodplain, although the County of Riverside designates the area as having "possible but undetermined flood hazards." Section 4.20 also concludes that construction would not substantially increase the amount of damage to the area that could result from flooding. Furthermore, mitigation measures, such as detention and retention of storm water flows and use of elongated posts in risk areas, would reduce the potential for damage to the project from flooding.

Indirect Effects

Emergency Evacuation and Emergency Response Plan. Although there would be fewer workers at the project site during operation, Alternative 4 could still potentially overburden local emergency response capacity. As during construction, implementation MM PHS-4 (Environmental Health and Safety Plan), MM PHS-5 (Emergency Response and Inventory Plan), and MM FIRE-1 (Fire Prevention Plan) would ensure that project personnel are trained to appropriately report and respond to emergencies. MM PHS-7 (fire services agreement) would ensure that there are adequate staff/volunteers to respond to emergencies. These measures would ensure that the project would not have unavoidable adverse effects related to emergency response.

Decommissioning

At the end of the life of Alternative 4, above-ground structures would be removed and demolished, and the site would be returned to its original condition.

Direct Effects

Hazardous Materials/Existing Contamination. Waste would be generated as part of decommissioning. In addition, improper disposal or recycling of panels or other project components could result in long-term outdoor storage of metal, lead soldered, mineral oil-containing, and petroleum-lubricated parts (such as tracking motors and articulating support structures) and may result in contaminated runoff that could pose a hazard to people and the environment.

MM PHS-6 ensures proper recycling and disposal of photovoltaic panels and other infrastructure, including support structures, treated wood poles, transformers, and inverters. Final disposal

of project infrastructure would also be required to be in compliance with existing laws and regulations governing the recycling and disposal of materials, including hazardous materials, at the time of decommissioning. With the implementation of this measure in addition to MM PHS-1 through MM PHS-5, there would be no unavoidable adverse effects on public health and safety related to hazardous materials/waste because those measures generally require a level of management, prevention, and response preparedness adequate to control hazardous materials.

Airports. As discussed for construction, the decommissioning of the project would not impact either the private air strip or to the special use airport. All facilities associated with the project would be removed. No effects would occur.

Indirect Effects

Emergency Response. Project decommissioning could potentially overburden local emergency response capacity. As during construction, implementation of MM PHS-4 (Environmental Health and Safety Plan), MM PHS-5 (Emergency Response and Inventory Plan), and MM FIRE-1 (Fire Prevention Plan) would ensure that project personnel are trained to appropriately report and respond to emergencies. MM PHS-7 (fire services agreement) would ensure that there are adequate staff/volunteers to respond to emergencies. These measures would ensure that the project would not have unavoidable adverse effects related to emergency response.

Mitigation Measures

MM PHS-1 through MM PHS-5, and MM FIRE-1 below build on and supplement the Applicant Measures in Section 4.13.2. MM PHS-6 has been added to address recycling of solar panels and other project components. MM PHS-7 addresses a fire services agreement, MM PHS-8 has been added to reduce the potential risks of MECs, and MM PHS-9 addresses herbicide application requirements.

MM PHS-1 **A Hazardous Materials Management Plan shall be prepared.** In accordance with the Emergency Planning & Community Right to Know Act, the project owner shall supply the local emergency response agencies with a Hazardous Materials Management Plan and an associated emergency response plan and inventory specific to the site. The project owner shall prepare the plan for approval by the BLM and review and comment by the County of Riverside. The project owner shall be responsible for implementing the approved plan.

The plan shall include**:**

1. Introduction to the plan that identifies business activities;
2. Identification of owner/operator with contact information;
3. A hazardous materials inventory statement listing all hazardous materials used during construction and operation;
4. A facility map; and
5. An emergency response/contingency plan that includes an evacuation plan, emergency contacts, emergency resources, any special arrangements with emergency responders, emergency procedures, post-incident reporting/recording responsibilities; earthquake vulnerability inspection or isolation; emergency

equipment; and an employee training plan that documents training areas and capabilities.

MM PHS-2 **Best Management Practices (BMPs) for hazardous materials shall be implemented.** During construction of the solar project and gen-tie line, BMPs for handling, storing, and disposing of hazardous materials and waste shall be followed.

BMPs shall include:

1. Keeping materials in their original containers with the original manufacturer‘s label and resealed when possible;
2. Avoiding excessive on-site inventories of chemicals; procure and store only the amounts needed for the job;
3. Following manufacturer’s recommendation for proper handling and disposal;
4. Conducting routine inspections to ensure that all chemicals on site are being stored, used, and disposed of appropriately;
5. Performing timely maintenance on vehicles/equipment that are leaking oil or other fluids, and placing drip plans under the leak when the vehicle/equipment is parked prior to the maintenance event;
6. Performing fueling of vehicles and equipment in locations that are protected from spillage onto exposed ground surface
7. Ensuring that all personnel dealing with hazardous materials are properly trained in the use and disposal of these materials in accordance with local, state and federal regulations; and
8. Maintaining Material Safety Data Sheets (MSDS) available on the site for use during project construction and operation.

MM PHS-3 **A Spill Prevention Control and Countermeasures (SPCC) Plan shall be prepared.** An SPCC shall be developed and implemented identifies primary and secondary containment for oil products and other hazardous materials stored on site as well as training in spill management in the event of an unexpected release. The project owner shall be responsible for implementing the approved plan. Prior to construction permit issuance, the project owner shall submit to BLM for review and approval a site-specific spill response plan with the following elements:

1. General information:
   a. Name and location of facility
   b. Description of facility operations
   c. General manager and emergency coordinator names and phone numbers (home, work, pager, and mobile contact information)
   d. Description of what is stored at the facility (contents and volume)

e. Site diagram showing:

   i. Hazardous materials storage areas
   ii. Drains (storm and sanitary)
   iii. Surface waters
   iv. Buildings
   v. Surrounding neighborhood

2. Prevention: A description of prevention measures to be taken at the project site, such as secondary containment, employee training, and proper storage. Products shall be kept in their original containers with the original manufacturer's label and resealed when possible, and the manufacturer's recommendation for proper disposal shall be followed. The site superintendent shall perform routine inspections to ensure that all materials onsite are being stored and disposed of in an appropriate fashion.

3. Preparedness: A description of the planned onsite equipment for spill response and its location. Spill clean-up materials and equipment appropriate to the type and quantity of hazardous materials shall be located onsite and personnel made aware of their location. Key employees shall be trained in spill response procedures in accordance with local, State, and federal regulations. Material safety data sheets (MSDSs) shall be kept onsite during construction and operation of the solar farm. Spill response materials including brooms, dust pans, mops, rags, gloves, absorbent pads/pillows/socks, sand/absorbent litter, sawdust, and plastic and metal containers will be kept onsite. The spill response plan shall also specify:

   a. The project owner's health and safety training plan, Department of Transportation–required training, and spill response training

   b. Local, State, and federal regulatory agency reporting procedures and phone numbers, as well as emergency response contractor contact information and local hospital contact information

4. Response Procedures: An outline of emergency response procedures, including physical spill clean-up procedures, reporting requirements, and stabilization techniques. Spill guidelines shall include the following:

   a. All spills shall be immediately cleaned up upon discovery. Spills will be reported to the BLM in writing within 24 hours, and by phone immediately.

   b. The spill area shall be kept well ventilated and personnel shall wear the appropriate protective clothing to prevent injury when cleaning up a spill

   c. Spills of hazardous materials shall be reported to the appropriate local, State, and federal authorities and/or regulatory agencies as required by law

   d. All vehicles leaking oil or fluids shall be scheduled for maintenance, and drip plans shall be placed under the leak when parked prior to the maintenance event

e. All spill and clean up material will be removed from site as soon as can be arranged and taken to a legal disposal facility. This paperwork will be submitted to the BLM.

5. A description of spill prevention and response measures for transportation of substation transformer oil to and from the project site. Spill guidelines shall include the following:

   a. The transformer oil transportation route shall be mapped with all navigable or potentially navigable waters adjacent to or perpendicular to the route

   b. A list of contact information for the appropriate local, State, and federal authorities shall be located in the transportation vehicle(s) at all times

   c. Transformer oil spills during transportation shall be immediately reported to the appropriate local, State, and federal authorities

The spill response plan shall be implemented during construction, operation, and decommissioning. In addition, during the life of project operation, the project shall not use any hazardous materials not specified in the plan or in greater quantities than specified, unless approved in advance by BLM.

MM PHS-4 **An Environmental Health and Safety Plan shall be prepared.** The project owner shall develop an Environmental Health and Safety Plan for the construction and operation of the project to ensure it includes all activities and compliance with all local, state and federal regulatory requirements. Illness and Injury Prevention Programs will be developed for construction and operation. The project owner shall prepare the plan for approval by the BLM. The project owner shall be responsible for implementing the approved plan.

The plan shall include the following:

1. An organizational structure;
2. A description of site characteristics and a job hazard analysis;
3. A description of site controls that includes a site map; identification of site access restrictions, site security, site work zones, any required exclusion zones, any contaminant reduction zones, relevant support zones, and site communications;
4. Training requirements and documentation of training;
5. Medical surveillance;
6. Personal protective equipment;
7. Exposure monitoring;
8. Heat stress;
9. Spill containment;
10. Decontamination;
11. Emergency response;
12. Relevant standard operating procedures; and
13. Confined space (if relevant).

MM PHS-5 **A project-specific Emergency Response and Inventory Plan shall be prepared**. The project owner shall provide the County of Riverside with a project-specific Emergency Response and Inventory Plan before construction begins. The project owner shall prepare the plan for approval by the BLM and review and comment by the County of Riverside. The project owner shall be responsible for implementing the approved plan.

The plan shall include the following:

1. An evacuation plan;
2. A list of emergency contacts;
3. A list of emergency resources;
4. Any special arrangements with emergency responders;
5. Relevant emergency procedures;
6. Post-incident reporting/recording responsibilities;
7. Identification of site components that may be vulnerable to earthquakes with procedures for inspection or isolation after a seismic event;
8. A list of on-site emergency equipment; and
9. An employee training plan that documents training areas and capabilities.

MM PHS-6 **Ensure proper disposal or recycling of photovoltaic panels and other infrastructure**. In order to ensure that disposing of project structures does not pose a risk to human health or the environment, the project owner shall develop a recycling and disposal plan for photovoltaic panels and other infrastructure, including support structures, treated wood poles, transformers, and inverters. This plan shall apply to components that are damaged or otherwise require replacement during project construction and operation and shall also apply to project decommissioning. The recycling plan shall specify means by which these project components will be disposed of in a manner that will not pose a risk to human health or the environment. Any sale or transfer of photovoltaic panels and support structures shall be required to transfer the recycling and disposal plan and obligations along with project infrastructure. The recycling plan shall apply to all project infrastructure. The project owner shall implement the recycling plan at the end of the project's useful lifetime.

Special circumstances for cadmium-containing infrastructure: For any cadmium-containing photovoltaic panels that are not already subject to a pre-funded take back and recycling program, the project owner must further:

1. Pre-identify a recycler of CdTe photovoltaic panels that is either in the United States, and therefore subject to regulations governing hazardous materials and health and safety regulations, or is ISO 14001 certified.
2. Provide a unique identification number for each CdTe module that is permanently affixed to the module and made of a material that will not fade or rust;

3. Register the location of each CdTe module with the County Department of Planning and Building; and
4. Label each CdTe module with the contact information for the County Department of Planning and Building.

MM PHS-7 **Develop and implement fire services agreement with Riverside County Fire Department and BLM.** The project owner shall enter into an agreement with Riverside County Fire Department/CAL FIRE and BLM. To address project impacts, the project owner, based on consultation with CAL FIRE, shall ensure that either (a) a sufficient number of permanent project employees are trained as volunteer fire fighters or (b) the project owner will provide fire protection training to its permanent employees. This will allow the project's on-site work force to combat and be first responders to any potential fires occurring on-site or within the vicinity of the project site prior to back up by CAL FIRE staff.

MM FIRE-1 **A project-specific Fire Prevention Plan shall be developed and implemented**. [Full text in Section 4.8, Fire and Fuels Management]

MM PHS-8 **Develop and implement plan to address munitions and explosives of concern (MEC).** The plan shall include the following;

1. Historical Research. The project owner shall take steps to gather detailed information on the history of military activities within the proposed project footprint. This shall include further research regarding prior MEC removals that may have been issued in the past for certain areas by military or other investigating entities and archival research with the cooperation of the Department of Defense.
2. Department of Defense Consultation. The project owner shall consult with the Department of Defense on the likely occurrence of, and safe treatment of, MECs in the project area. As a result of the historical occurrence of military training activities throughout the Desert Training Center/California-Arizona Maneuver Area, potentially including the project area, this MEC consultation and archival research shall address the entire project footprint.
3. Further Assessment as Appropriate. After initial research and consultation with Department of Defense personnel, the project owner shall undertake, as necessary, further appropriate above and below-ground assessments, under the direction of an expert consultant team (as determined by BLM), to delineate areas for further investigation and possible MEC removal. The project owner, under direction from the BLM, shall determine which site-specific in-field investigative techniques and methodologies will be utilized to investigate and resolve potential MEC issues prior to project construction.
4. MEC Safety Training. All construction personnel shall receive appropriate MEC health and safety awareness training to ensure that they know what actions to take if unanticipated MEC or other suspicious articles are encountered during construction.

MM PHS-9 **Use Licensed Herbicide Applicator.** During the construction and operational phases of the project, the contractor or personnel applying herbicides shall have all the appropriate State and local herbicide applicator licenses and comply with all State and local regulations regarding herbicide use, including the BLM's 2007 *Vegetation Treatments Using Herbicide Programmatic Final Environmental Impact Statement*. Herbicides shall be mixed and applied in conformance with the product manufacturer's directions. The herbicide applicator shall be equipped with splash protection clothing and gear, chemical resistant gloves, chemical spill/splash wash supplies, and material safety data sheets (MSDSs) for all hazardous materials to be used. To minimize harm to wildlife, vegetation, and waterbodies, herbicides shall not be applied directly to wildlife, products identified as non-toxic to birds and small mammals shall be used if nests or dens are observed, and herbicides shall not be applied within 50 feet of any surface waterbody when water is present. Herbicides shall not be applied if it is raining at the site, rain is imminent, or the target area has puddles or standing water. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is observed to be drifting to a non-target location, spraying shall be discontinued until conditions causing the drift have abated.

Prior to any herbicide application, the herbicide applicator shall contact the Environmental Monitor to show where work will be done and to receive information/training about potentially sensitive biological resources that may be within the area to be sprayed and methods to apply to minimize those impacts. A Worker's Training Manual shall be prepared and include a provision on herbicide application. Once facility operation commences, this Manual shall be given to any herbicide applicator to be reviewed prior to spraying.

Residual Impacts and Unavoidable Adverse Effects

With the implementation of proposed mitigation, the construction, operation and decommissioning of the proposed solar facility would not result in any unavoidable adverse effects to public health and safety.

4.13.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area.

Construction

Construction components of Alternative 5 would be identical to those of Alternative 4.

Although less land would be disturbed under Alternative 5 than under Alternative 4, required construction activities and materials would be essentially the same as those described for Alternative 4 above. Therefore, the effects related to public health and safety from construction of Alternative 5 would be the same as those under Alternative 4.

Operation and Maintenance

Operation and maintenance activities and equipment required under Alternative 5 would be essentially the same as those under Alternative 4.

The effects resulting from operation and maintenance of Alternative 5 would be the same as those discussed under Alternative 4.

Decommissioning

Decommissioning activities under Alternative 5 would be essentially the same as those under Alternative 4.

The effects resulting from decommissioning of Alternative 5 would be the same as those discussed under Alternative 4 since the same plans for protecting worker safety and the environment would be required.

Mitigation Measures

The measures identified for Alternative 4 would also be implemented under Alternative 5.

Residual Impacts and Unavoidable Adverse Effects

With the implementation of proposed mitigation, the construction, operation and decommissioning of Alternative 5 would not result in any unavoidable adverse effects to public health and safety.

4.13.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would exclude the 155-acre southern parcel of the project and a small portion of the northern parcel that contains sensitive plant species, crucifixion thorn, as shown on Figure 2-10, Alternative 6: Reduced Footprint Solar Project, in Appendix A.

Construction

Construction components of Alternative 6 would be identical to those of Alternative 4.

Although less land would be disturbed under Alternative 6 than under Alternative 4, required construction activities and materials would be essentially the same as those described for Alternative 4 above. Therefore, the effects related to public health and safety from construction of Alternative 6 would be the same as those under Alternative 4.

Operation and Maintenance

Operation and maintenance activities and equipment required under Alternative 6 would be essentially the same as those under Alternative 4.

The effects resulting from operation and maintenance of Alternative 6 would be the same as those discussed under Alternative 4.

Decommissioning

Decommissioning activities under Alternative 6 would be essentially the same as those under Alternative 4.

The effects resulting from decommissioning of Alternative 6 would be the same as those discussed under Alternative 4 since the same plans for protecting worker safety and the environment would be required.

Mitigation Measures

The measures identified for Alternative 4 would also be implemented under Alternative 6.

Residual Impacts and Unavoidable Adverse Effects

With the implementation of proposed mitigation, the construction, operation and decommissioning of Alternative 6 would not result in any unavoidable adverse effects to public health and safety.

4.13.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet.

Construction

Construction components of Alternative 7 would be identical to those of Alternative 4.

Although less land would be disturbed under Alternative 7 than under Alternative 4, required construction activities and materials would be essentially the same as those described for Alternative 4 above. Therefore, the effects related to public health and safety from construction of Alternative 7 would be the same as those under Alternative 4.

Operation and Maintenance

Operation and maintenance activities and equipment required under Alternative 7 would be essentially the same as those under Alternative 4.

The effects resulting from operation and maintenance of Alternative 7 would be the same as those discussed under Alternative 4.

Decommissioning

Decommissioning activities under Alternative 7 would be essentially the same as those under Alternative 4.

The effects resulting from decommissioning of Alternative 7 would be the same as those discussed under Alternative 4 since the same plans for protecting worker safety and the environment would be required.

Mitigation Measures

The measures identified for Alternative 4 would also be implemented under Alternative 7.

Residual Impacts and Unavoidable Adverse Effects

With the implementation of proposed mitigation, the construction, operation and decommissioning of Alternative 7 would not result in any unavoidable adverse effects to public health and safety.

4.13.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, there would be no effects to public health or safety related to construction, operations and maintenance, or decommissioning.

Mitigation Measures

No mitigation measures for public health and safety are required for Alternative A.

Residual Impacts and Unavoidable Adverse Effects

No public health and safety effects would result from the implementation of Alternative A.

4.13.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Under Alternative B, the proposed gen-tie would utilize transmission infrastructure developed for the DSSF project by sharing the approved transmission towers. However, because construction of the DSSF gen-tie line had not yet begun in September 2011, this analysis assumes that the proposed project would include all construction, operations, and decommissioning activities for Alternative B.

Construction

Stringing the proposed gen-tie line would occur concurrently with construction of the gen-tie line for DSSF. However, since this construction had not yet begun in September 2011, this analysis assumes that the Proposed Action would require all related construction activities.

The types of construction activities under Alternative B would be similar to those for Alternative 4; however, substantially less construction would be required for the gen-tie than for the project and no solar modules would be involved. Therefore, there would be less potential for effects on public health and safety.

Operation and Maintenance

Operation and maintenance activities under Alternative B would be essentially the same as those for Alternative 4.

Effects of operation and maintenance under Alternative B would be similar to those of Alternative 4; however, less maintenance activity would be required for the gen-tie than for the project, and no solar modules would be involved. Therefore, there would be less potential for effects to public health and safety.

Decommissioning

Decommissioning activities under Alternative B would be similar to those for Alternative 4; however, less decommissioning would be required for the gen-tie than for the solar facility and no solar modules would be involved. Therefore, there would be fewer potential effects to public health and safety.

Mitigation Measures

Measures identified for Alternative 4 would also be implemented for Alternative B.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative B would not result in any unavoidable adverse effects.

4.13.12 Alternative C – Separate Transmission Towers within Same ROW

Under Alternative C, the gen-tie line would parallel the approved DSSF gen-tie line, and would be located on separate towers within the same ROW. The same number of towers in a nearly identical alignment to that of the DSSF towers would be constructed.

Construction

Construction effects would be the same as those of Alternative B.

Operation and Maintenance

Operations and maintenance effects would be the same as those of Alternative B.

Decommissioning

Decommissioning effects would be the same as those of Alternative B.

Mitigation Measures

Measures identified for Alternative 4 would also be implemented for Alternative C.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative C would not result in any unavoidable adverse effects.

4.13.13 Alternative D – Cross-Valley Alignment

Construction, operation and maintenance, and decommissioning of Alternative D would be the same as described for Alternatives B and C, except it would require slightly less temporary and permanent ground disturbance.

Construction

Effects on public health and safety would be slightly reduced under Alternative D due to the need for slightly less ground disturbance, noted above. However, with consideration to the over-

all project, this difference in potential effects would be negligible. Construction effects to would be the same as described for Alternative B.

Operation and Maintenance

Potential effects to public health and safety from operations and maintenance would be the same as those from Alternative B.

Decommissioning

Decommissioning of Alternative D may result in slightly decreased effects to public health and safety compared to Alternatives B and C because of slightly decreased land disturbance. However, as with construction, this difference would be negligible. Decommissioning effects to public health and safety would be essentially the same as those from Alternative B.

Mitigation Measures

Measures identified for Alternative 4 would also be implemented for Alternative D.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative D would not result in any unavoidable adverse effects.

4.13.14 Alternative E – New Cross-Valley Alignment

Construction, operation and maintenance, and decommissioning of Alternative E would be the same as described for Alternative D.

Construction

Effects on public health and safety would be the same under Alternative E as described above for Alternative D.

Operation and Maintenance

Effects on public health and safety would be the same under Alternative E as described above for Alternative D.

Decommissioning

Effects on public health and safety would be the same under Alternative E as described above for Alternative D.

Mitigation Measures

Measures identified for Alternative 4 would also be implemented for Alternative E.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative E would not result in any unavoidable adverse effects.

4.13.15 Cumulative Effects

Geographic Scope

The geographic area considered for cumulative effects on Public Health and Safety is within the I-10 corridor from Indio to Blythe, California for emergency response. A number of alternative energy projects are proposed in the region, primarily east of the project site area (see Tables 4.1-1 and 4.1-2 in Section 4.1 for complete list of existing and foreseeable projects included in the cumulative analysis approach). The geographic area considered for cumulative effects for hazards includes the immediate solar facility boundaries and the access routes to the gen-tie line and alternatives and the primary access route to the solar facility site.

Past, Present, and Reasonably Foreseeable Future Projects

Existing and foreseeable projects within the I-10 corridor are listed in Tables 4.1-1 and 4.1-2 and could combine with the project and result in effects to emergency response of the proposed project and alternatives. Table 4.13-2 lists all existing and foreseeable projects that could combine with hazards to result in cumulative effects.

Table 4.13-2. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Public Health and Safety	Within the I 10 corridor from Indio to Blythe, California for emergency response and within the proposed project and alternatives and access routes for hazards	Hazardous spills and emergencies or fires at multiple locations	All projects listed in Table 4.1-1 and 4.1-2 for emergency response. The following projects for hazardous spills: • Desert Sunlight Solar Farm • Desert Center Solar Project • Chuckwalla Valley Racetrack • Silverado Power Solar Project • SCE Red Bluff Substation (Alternatives B through E) • I-10 (Alternatives B through E)

Cumulative Effects Analysis

Hazardous material spills or safety issues related to emergency response during construction and operation of the proposed project or alternatives could potentially contribute to cumulative effects when combined with the impacts of other foreseeable projects in the area. In particular, if hazardous material spills, fires, or other emergencies occurred at multiple project sites simultaneously, emergency response resources could be overwhelmed and unable respond effectively. However, it is unlikely that two or more facilities would require emergency response at the same time, and with the implementation of mitigation measures required for the proposed project or Alternatives 5 through 7 and C through E, the project would not substantially contribute to cumulative effects related to emergency response. Implementation of emergency response plans and fire management plans would also be standard protocols for other facilities in the region and these plans would likely be similarly effective in ensuring no cumulative effects related to emergency response or fire.

Because the project would comply with all relevant regulatory requirements regarding use and disposal of hazardous materials, the incremental effects of the project related to exposing workers, the public, or the environment to hazardous materials would be minimal. Mitigation

Measures PHS-1 through PHS-6 (Hazardous Materials Management Plan, BMPs for hazardous materials, SPCC Plan, Environmental Health and Safety Plan, Emergency Response and Inventory Plan, Recycling and Disposal of Panels) would also reduce these potential effects. Other foreseeable renewable energy projects in the vicinity, such as Palen Solar Energy and the DSSF project (directly north of the DHSP) are subject to the same regulatory requirements related to the handling, storage, and disposal of hazardous materials and wastes. As are result, the collective impact from those projects to public health and safety is not expected to be substantial.

Because construction and project development would not occur under the No Action and No Project Alternatives (Alternatives 1, 2, and 3) or Alternative A (No Gen-Tie), these alternatives would not contribute to cumulative effects. Alternative B would not contribute to cumulative effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

4.13.16 CEQA Considerations

CEQA Significance Criteria

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. These criteria are used to determine whether the project or alternative would result in significant impacts to public health or safety under CEQA. Impacts to public health and safety would be significant if the project:

H-1 Increases exposure of humans or the environment to potentially hazardous levels of chemicals due to the disturbance of contaminated soils or to the discharge or disposal of hazardous materials into soils;

H-2 Increases significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

H-3 Creates a significant hazard to the public or the environment through reasonably foreseeable upset and accidental conditions involving the release of hazardous materials into the environment;

H-4 Is located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (i.e., the Cortese List of underground leaking storage tanks) that would create a significant hazard to the public or environment;

H-5 Impairs implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;

H-6 Mobilizes contaminants in the soil or groundwater, creating potential pathways of exposure to humans or wildlife that would result in exposure to contaminants at levels that would be expected to be harmful;

H-7 Exposes workers to contaminated or hazardous materials at levels in excess of those permitted by the Federal Occupational Safety and Health Administration (OSHA) in CFR 29, Part 1910, and the California Occupational Safety and Health Agency

(Cal/OSHA) in California Code of Regulations (CCR) Title 8, or expose members of the public to direct or indirect contact with hazardous materials from proposed project construction or operations;

H-8 Exposes people or structures to a significant risk of loss, injury, or death involving electrocution or cause excessive exposure to wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands;

H-9 Results in safety hazards to people that may be located in the vicinity of private air strips or airports located within 2 miles of the project; or

H-10 Exposes people to significant hazards or structures to loss as a result of intentionally destructive acts.

For all project alternatives, the following criterion was determined to be inapplicable or to result in no impact under alternatives. The determination regarding this significance criterion is discussed below and then this significance criterion is not considered further.

- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

No component associated with any project alternative is located within one-quarter of a mile of the closest school, the Eagle Mountain Elementary School. There would be no impacts under this criterion from any component of the project.

CEQA Significance Determination

Alternatives 1, 2, 3 and A would not involve construction of the project or gen-tie line. These alternatives would have no impacts on public health and safety.

Alternative 4

With regard to Criterion H-1, the project site does not contain any known contamination that would be disturbed and increase exposure of workers, the public, or the environment to hazardous chemicals. Any previously unknown contaminated soils that may be encountered would be treated and disposed of in accordance with applicable regulations. Therefore, impacts related to Significance Criterion H-1 would be less than significant.

With regard to Criterion H-2, all hazardous materials that would be transported, used, or disposed of during construction, operation, and decommissioning of the project would be dealt with in accordance with all applicable regulatory requirements. With the implementation of Mitigation Measures PHS-1 through PHS-6, impacts related Significance Criterion H-2 would be less than significant.

With regard to Criterion H-3, all hazardous materials that would be transported, used, or disposed of during construction, operation, and decommissioning would be dealt with in accordance with all applicable regulatory requirements. Mitigation Measure PHS-3 specifically addresses the components of the required Spill Prevention Control and Countermeasure (SPCC) Plan. With the implementation of Mitigation Measures PHS-1 through PHS-6, impacts related Significance Criterion H-3 would be less than significant. Mitigation Measure PHS-8 spe-

cifically addresses potential hazards related to munitions and explosives of concern (MEC) that could be found in the project area.

With regard to Criterion H-4, based on the Phase I ESA conducted for the DSSF project, the DHSP site and the gen-tie line routes do not contain any hazardous materials sites pursuant to Government Code Section 65962.5. Therefore, the project would have no impact related to Significance Criterion H-4.

With regard to Criterion H-5, the project could potentially impact the implementation of emergency response plans; however, with the implementation of Mitigation Measures PHS-4 (Environmental Health and Safety Plan) and PHS-5 (Emergency Response and Inventory Plan), this impact would be less than significant.

For Criterion H-6, see Criteria H-1 and H-4. No known soil contaminants would be mobilized by ground disturbance associated with the proposed project. There would be no impact related to Significance Criterion H-6.

For Criterion H-7, see also Criterion H-2. All hazardous materials that would be transported, used, or disposed of during project construction, operation, and decommissioning would be dealt with in accordance with all applicable regulatory requirements. There is no known contamination that on the project site that would expose workers to hazardous materials. With the implementation of Mitigation Measures PHS-1 through PHS-6, impacts related Significance Criterion H-7 would be less than significant.

With regard to Criterion H-8, the project could increase the risk of wildfire because vehicles used for the project could cause combustion of dry vegetation. However, with the implementation of Mitigation Measure FIRE-1, MM PHS-5, and MM VEG-9 (Prepare Integrated Weed Management Plan), impacts related to Significance Criterion H-8 would be less than significant.

With regard to Criterion H-9, the project would not create safety hazards for the one small private air strip or the special use airport in the vicinity. The project would have no aboveground structures that would increase safety hazards to the two private air strips. No impacts would occur related to Significance Criterion H-9.

With regard to Criterion H-10, although the project would introduce facilities that could be subject to intentionally destructive acts, with the implementation of MM PHS-5 impacts related to Significance Criterion H-10 would be less than significant.

Cumulative Impacts. The project would pose potential risks to public health and safety related to use and disposal of hazardous materials. MM PHS-1 through MM PHS-6 would minimize these impacts, and the impacts would be site-specific and would not combine with similar effects from other projects to produce cumulative impacts. Therefore, the project would not represent a considerable contribution to any cumulative impacts to public health and safety related to hazardous materials.

The project could potentially contribute to overburdening emergency response resources; however, implementation of MM PHS-4 (Environmental Health and Safety Plan), MM PHS-5 (Emergency Response and Inventory Plan), and MM FIRE-1 (Fire Prevention Plan) would ensure that project personnel are trained to appropriately report and respond to emergencies. MM PHS-7 (fire services agreement) would ensure that there are adequate staff/volunteers to

respond to emergencies. With these measures the project would not represent a considerable contribution to cumulative impacts related to emergency response.

Alternative 5

Significance Criteria H-1 through H-10 would be the same for Alternative 5 as for Alternative 4 as discussed in Section 4.13.7. The same mitigation measures would apply as appropriate.

Alternative 6

Significance Criteria H-1 through H-10 would be the same for Alternative 6 as for Alternative 4 as discussed in Section 4.13.8. The same mitigation measures would apply as appropriate.

Alternative 7

Significance Criteria H-1 through H-10 would be the same for Alternative 7 as for Alternative 4 as discussed in Section 4.13.8. The same mitigation measures would apply as appropriate.

Alternative B

Significance Criteria H-1 through H-10 would be the essentially same for Alternative B as for Alternative 4 as discussed in Section 4.13.11. The same mitigation measures would apply as appropriate.

Alternative C

Significance Criteria H-1 through H-10 would be essentially the same for Alternative C as for Alternative 4 as discussed in Section 4.13.12. The same mitigation measures would apply as appropriate.

Alternative D

Significance Criteria H-1 through H-10 would be essentially the same for Alternative D as for Alternative 4 as discussed in Section 4.13.13. The same mitigation measures would apply as appropriate.

Alternative E

Significance Criteria H-1 through H-10 would be essentially the same for Alternative E as for Alternative 4 as discussed in Section 4.13.14. The same mitigation measures would apply as appropriate.

4.14 RECREATION

4.14.1 Methodology for Analysis

This section addresses whether the construction, operation, and decommissioning of the proposed project and alternatives would directly or indirectly impact recreational opportunities including off-highway vehicle travel, hiking, backpacking and long-term camping in established federal, state, or local recreation areas and/or wilderness areas.

4.14.2 Applicant Measures

No applicant measures, project design features, best management practices, or other measures related to recreation are proposed.

4.14.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the Desert Harvest Solar Project (DHSP) would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site, and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended. Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects from the project would not occur.

4.14.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Plan. It is possible that, as a result of the CDCA Plan amendment, that in the future another solar energy generation project could be proposed with impacts similar to the DHSP, however, such impacts are speculative at this time, and no effects from the DHSP would occur.

4.14.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

4.14.6 Alternative 4 – Proposed Solar Project

Construction

Direct Effects

Construction of Alternative 4 would develop 1,208 acres of undeveloped multiple use BLM land as a solar field. As described in Chapter 3.14, recreation use in the project area is minimal. Most recreation use is related to driving for pleasure, sightseeing, rock hounding, hiking, hunting/target shooting, or photography. Most visitors are local residents of Desert Center or Blythe. The project area included in Alternative 4 would be exclusively used for solar energy generation, and all recreation would be prohibited during construction. As described in section 3.14, there are no open access areas that intersect Alternative 4. However, three open routes intersect the solar facility site and would result in a maximum of approximately 5.7 miles of trail closures in the area. These routes do not represent essential components of the local trail network and are relatively small compared to the total available length of routes in the area. Direct effects to this recreational use would thus be minimal.

Indirect Effects

Eliminating recreational use of the Alternative 4 site could result in some minimal increase of recreational use outside the project boundary. In addition, the construction of the proposed solar facility would result in a temporary increase in population due to the influx of construction workers. The solar facility and gen-tie line could require a peak construction workforce of up to 315 workers. Construction workers are expected to travel to the site from various locations, chiefly from within Riverside and San Bernardino Counties. During construction, workers might temporarily relocate to the project vicinity and use local recreation areas such as the recreational opportunities in Lake Tamarisk. During the two-year construction period, the average number of solar facility construction workers is anticipated to be 100, and the maximum number is anticipated to be 250; the gen-tie workforce will average 30 employees and no more than 65 employees at any one point. The Desert Lily ACEC, Joshua Tree Wilderness, and JTNP are in the immediate vicinity of the project site. Use of these recreation areas by temporary construction workers is not expected to affect recreational use of the Desert Lily ACEC, Joshua Tree Wilderness, or JTNP by the general public, as construction worker use is expected to be minimal.

Because construction of the project would alter the existing character of the project study area, it may affect surrounding recreational uses as a result of the altered viewshed, including a substantial adverse effect on the wilderness experience of dispersed and occasional visitors to the Joshua Tree Wilderness Area, located 1.8 miles from the solar facility boundary at its nearest point. Noise impacts would not occur due to the distance between the Joshua Tree Wilderness Area and the project site. These issues are addressed in detail in Sections 4.19 (Visual Resources) and 4.12 (Noise), respectively. In addition, the effects of the proposed project on JTNP and the Joshua Tree Wilderness Area for all resources are addressed in Section 4.17 (Special Designations). A 2010 JTNP visitor survey revealed that the most important attributes/resources to visitor groups in the Park as a whole were (1) Views without development, (2) Clean air, (3) Natural quiet/sounds of nature, (4) Desert plants/wildflowers, (5) Native wildlife, (6) Access to rock formations, (7) Solitude, (8) Dark, starry night skies, and (9) Access to historical/cultural sites (Jette et al. 2011). Therefore, project construction-related increased ambient night lighting,

daytime dust, or noise above a 35 dBA threshold within the Park boundaries would indirectly affect the recreational resources within the Park.

Fugitive dust from construction would create a temporary visual distraction for a limited number of users of portions of recreational areas, although implementation of Mitigation Measure AIR-1 would restrict project-related generation of dust clouds within the Park and minimize dust in other special designation areas. Mitigation Measure AIR-4 would prevent other equipment emissions by limiting idling and setting standards for engines. Mitigation Measure NOI-2 would control construction noise relative to JTNP boundaries. Mitigation Measure VR-1 would require a number of actions, such as minimizing vegetation removal, to reduce construction related impacts to visual resources in nearby recreation areas. Mitigation Measure VR-6 would control night lighting within JTNP boundaries. Longer duration construction-related impacts would be addressed by Mitigation Measure VR-2, which requires successful revegetation of temporarily disturbed areas. This mitigation measure would improve views and the experience of natural character of recreation areas. It is also anticipated that some construction activity would take place at night, which would result in adverse night lighting visual effects to recreational areas. In order to ensure that substantial adverse construction lighting effects do not occur, Mitigation Measure VR-6 would reduce effects associated with night lighting by requiring strict lighting specifications and controls and operating parameters.

While the construction of the project is not expected to reduce visitation to the Joshua Tree Wilderness Area, it is expected to diminish the wilderness experience in proximal locations to the project within the Park and the Coxcomb Mountains throughout the two-year duration of construction.

Operation and Maintenance

The proposed operation and maintenance of Alternative 4 would have the same effects as those during construction, because the area would be used exclusively for solar generation and remain closed to recreation for the life of the project. In addition, although the visual effects of operation and the long term presence of the project would be substantially reduced compared with construction, the effects would be ongoing for 30 years, permanently diminishing the wilderness experience to dispersed recreational visitors to the Joshua Tree Wilderness Area. Mitigation Measure AIR-3 would require specific controls for operational dust emissions, thus reducing dust-related impacts throughout the project's operations phase. Mitigation Measures VR-3 and VR-4, which require the project design to reduce visual contrast with surrounding areas through surface treatments and other actions, and Mitigation Measure VR-5, which further reduces contrast through a screening vegetation buffer, would all serve to minimize visual impacts to recreational areas throughout the life of the project.

Decommissioning

During the decommissioning process, the same area would be closed to recreation as during construction, yielding the same effects. After revegetation is successful, decommissioning of Alternative 4 would ultimately result in the reopening of the area to other uses, including recreation, and it would improve the wilderness experience for visitors to Joshua Tree Wilderness Area that would be diminished during project construction and operation.

Mitigation Measures

The following mitigation measures would ensure that project-related effects to recreation would be reduced:

MM AIR-1 **Fugitive Dust Control Plan.** [full text of measure in Section 4.2]

MM AIR-3 **Control Operational Fugitive Dust.** [full text of measure in Section 4.2]

MM AIR-4 **Control Equipment Emissions**. [full text of measure in Section 4.2]

MM NOI-2 **No Net Increase in Ambient Noise within JTNP.** [full text of measure in Section 4.12]

MM VR-1 **Reduce Construction Related Impacts.** [full text of measure in Section 4.19]

MM VR-2 **Revegetation.** [full text of measure in Section 4.19]

MM VR-3 **Project Design to Reduce Visual Contrast.** [full text of measure in Section 4.19]

MM VR-4 **Surface Treatment of Project Structures/Buildings.** [full text of measure in Section 4.19]

MM VR-5 **Screening Vegetation Buffer.** [full text of measure in Section 4.19]

MM VR-6 **Night Light Control.** [full text of measure in Section 4.19]

Residual Impacts and Unavoidable Adverse Effects

Mitigation Measures VR-1 through VR-6 would reduce impacts to recreational users as a result of the altered viewshed. Nonetheless, residual impacts to recreational visitors to the Joshua Tree Wilderness Area would be the substantial diminishment of the wilderness experience from areas in which the project is visible. Implementation of Alternative 4 would result in an unavoidable adverse effect to the wilderness experience in proximal locations within the Coxcomb Mountains during construction, operation, and decommissioning.

4.14.7 Alternative 5 – Solar Project Excluding WHMA

Construction

Construction of Alternative 5 would create the same effects on recreation as Alternative 4. The Wildlife Habitat Management Area (WHMA) removed from the solar facility site under Alternative 5 does not provide additional recreational resources, and OHV route closures would also be a maximum of 5.7 miles. Therefore, effects from construction of Alternative 5 would not differ from those of Alternative 4.

Operation and Maintenance

The effects resulting from operating and maintaining Alternative 5 would be the same as those discussed under Alternative 4.

Decommissioning

The effects resulting from decommissioning Alternative 5 would be the same as those discussed under Alternative 4.

Mitigation Measures

The measures identified for Alternative 4 would also be implemented under Alternative 5.

Residual Impacts and Unavoidable Adverse Effects

Mitigation Measures VR-1 through VR-6 would reduce impacts to recreational users as a result of the altered viewshed. Nonetheless, residual impacts to recreational visitors to the Joshua Tree Wilderness Area would be the substantial diminishment of the wilderness experience from areas in which the project is visible. Implementation of Alternative 5 would result in an unavoidable adverse effect to the wilderness experience in proximal locations within the Coxcomb Mountains during construction, operation, and decommissioning.

4.14.8 Alternative 6 – Reduced Footprint Solar Project

Construction

Construction of Alternative 6 would create the similar effects on recreation as Alternative 4. The southwest portion of the solar facility, removed from the project under Alternative 6, would provide an additional 0.8 miles of open OHV routes, and could facilitate access to routes northwest of the project site. However, this difference does not represent a significant additional recreational resource, as the distance is very small relative to the surrounding route network, and there are other nearby routes providing access to the area northwest of the project site. Therefore, effects from construction of Alternative 6 would be substantially the same as Alternative 4.

Operation and Maintenance

The effects resulting from operating and maintaining Alternative 6 would be the same as those discussed under Alternative 4.

Decommissioning

The effects resulting from decommissioning Alternative 6 would be the same as those discussed under Alternative 4.

Mitigation Measures

The measures identified for Alternative 4 would also be implemented under Alternative 6.

Residual Impacts and Unavoidable Adverse Effects

Mitigation Measures VR-1 through VR-6 would reduce impacts to recreational users as a result of the altered viewshed. Nonetheless, residual impacts to recreational visitors to the Joshua Tree Wilderness Area would be the substantial diminishment of the wilderness experience from areas in which the project is visible. Implementation of Alternative 4 would result in an unavoidable

adverse effect to the wilderness experience in proximal locations within the Coxcomb Mountains during construction, operation, and decommissioning.

4.14.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Construction

Construction of Alternative 7 would create the similar effects on recreation as Alternative 4. The southwest portion of the solar facility, removed from the project under Alternative 7, provides an additional 0.8 miles of open OHV routes, and could facilitate access to routes northwest of the project site. However, this difference does not represent a significant additional recreational resource, as the distance is very small relative to the surrounding route network, and there are other nearby routes providing access to the area northwest of the project site. The high-profile of the panel height does not substantially change the altered viewshed and adverse effect on the wilderness experience. Therefore, effects from construction of Alternative 7 would be substantially the same as Alternative 4.

Operation and Maintenance

The effects resulting from operating and maintaining Alternative 7 would be the same as those discussed under Alternative 4.

Decommissioning

The effects resulting from decommissioning Alternative 7 would be the same as those discussed under Alternative 4.

Mitigation Measures

The measures identified for Alternative 4 would also be implemented under Alternative 7.

Residual Impacts and Unavoidable Adverse Effects

Mitigation Measures VR-1 through VR-6 would reduce impacts to recreational users as a result of the altered viewshed. Nonetheless, residual impacts to recreational visitors to the Joshua Tree Wilderness Area would be the substantial diminishment of the wilderness experience from areas in which the project is visible. Implementation of Alternative 4 would result in an unavoidable adverse effect to the wilderness experience in proximal locations within the Coxcomb Mountains during construction, operation, and decommissioning.

4.14.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, no recreational resources effects related to construction, operations and maintenance, or decommissioning would occur.

Mitigation Measures

No mitigation measures for effects to recreation are required for Alternative A.

Residual Impacts and Unavoidable Adverse Effects

No effects to recreation would result from the implementation of Alternative A.

4.14.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Construction

Direct Effects

Construction of Alternative B would be located in an area that does not contain designated recreational areas or recreational activity, and its construction would not affect aforementioned recreational activities. Alternative B and related construction efforts would not inhibit any OHV routes, and would not affect existing OHV opportunities. Use of these recreation areas by temporary construction workers is not expected to affect recreational use of the Desert Lily Preserve ACEC, Joshua Tree Wilderness, or JTNP by the general public, as construction worker use is expected to be minimal.

Indirect Effects

Because construction of Alternative B would alter the existing character of the area, it may affect surrounding recreational uses as a result of the altered viewshed, including a substantial adverse effect on the wilderness experience of dispersed and occasional visitors to the Joshua Tree Wilderness Area and Alligator Rock ACEC. Construction activities would be visible from BLM recreational access roads, Desert Lily Preserve ACEC, Joshua Tree Wilderness in JTNP, and the Chuckwalla Mountains Wilderness. However, the Joshua Tree Wilderness Area is located 4.5 miles and the Alligator Rock ACEC is located 0.5 miles from Alternative B at the nearest point. Noise impacts would not occur and visual impacts would be minimal due to the distance between the Joshua Tree Wilderness Area and Alligator Rock ACEC and the gen-tie line. These issues are addressed in detail in Sections 4.19 (Visual Resources) and 4.12 (Noise), respectively. In addition, the effects of the proposed project on JTNP, the Joshua Tree Wilderness Area, and Alligator Rock ACEC for all resources are addressed in Section 4.17 (Special Designations). The construction of Alternative B is not expected to reduce visitation to the Wilderness Area and it is expected to minimally diminish the wilderness experience throughout the duration of construction.

Operation and Maintenance

Direct Effects

Operation and Maintenance of Alternative B would be located in an area that does not contain designated recreational areas or recreational activity, and its operation would not affect aforementioned recreational activities. Operating and maintaining Alternative B would not inhibit any OHV routes.

Indirect Effects

The proposed operation and maintenance of Alternative B would have the same effects as those during construction, because the area would be used exclusively for the gen-tie line and remain closed to recreation for the life of the project. The visual effects of operation and the long term

presence of the gen-tie line would be substantially reduced compared with construction and would minimally diminishing the wilderness experience to dispersed recreational visitors to the Joshua Tree Wilderness Area and Alligator Rock ACEC.

Decommissioning

Direct Effects

Decommissioning Alternative B would neither limit existing recreational opportunities nor restore any recreational opportunities. Further review would be required if new recreational opportunities developed in the project area, but none are currently planned (BLM 2010).

Indirect Effects

During the decommissioning process, the same area would be closed to recreation as during construction, yielding the same effects. Decommissioning of Alternative B would ultimately result in the reopening of the area to other uses, including recreation, and it would enhance the wilderness experience for visitors to Joshua Tree Wilderness Area and Alligator Rock ACEC.

Mitigation Measures

Mitigation Measures VR-1 through VR-6 would also apply to Alternative B with respect to the transmission line component.

Residual Impacts and Unavoidable Adverse Effects

With implementation of Mitigation Measures VR-1 through VR-6 to reduce impacts to recreational users as a result of the altered viewshed and construction, the construction, operation and maintenance, and decommissioning of Alternative B would not result in any unavoidable adverse effects.

4.14.12 Alternative C – Separate Transmission Towers within Same ROW

Construction

Because Alternative C would be within the same ROW and follow the same path as Alternative B, construction effects of Alternative C would be the same as those described for Alternative B.

Operation and Maintenance

Operation and maintenance effects of Alternative C would be the same as those described for Alternative B.

Decommissioning

Decommissioning effects of Alternative C would be the same as those described for Alternative B.

Mitigation Measures

Mitigation Measures VR-1 through VR-6 would also apply to Alternative C with respect to the transmission line component.

Residual Impacts and Unavoidable Adverse Effects

With implementation of Mitigation Measures VR-1 through VR-6 to reduce impacts to recreational users as a result of the altered viewshed and construction, the construction, operation and maintenance, and decommissioning of Alternative C would not result in any unavoidable adverse effects.

4.14.13 Alternative D – Cross-Valley Alignment

Construction

Direct Effects

Construction of Alternative D would be located in an area that does not contain designated recreational areas or recreational activity, and its construction would not affect aforementioned recreational activities. Alternative D and related construction efforts would not inhibit any OHV routes.

Indirect Effects

Construction of Alternative D would not diminish access or availability of recreational opportunities in the project vicinity. Alternative D is located 4 miles from the nearest Joshua Tree Wilderness Area and would be located adjacent to an existing transmission line. Noise impacts would not occur due to the distance between the Joshua Tree Wilderness Area and Alternative D and visual impacts would be minimal. The construction of Alternative D is not expected to reduce visitation to the Wilderness Area and it is expected to minimally diminish the wilderness experience throughout the duration of construction.

Operation and Maintenance

Direct Effects

Operation and Maintenance of Alternative D would be located in an area that does not contain designated recreational areas or recreational activity, and its operation would not affect aforementioned recreational activities. Operating and maintaining Alternative D would not inhibit any OHV routes.

Indirect Effects

Operation and Maintenance of Alternative D would not diminish access or availability of recreational opportunities in the project vicinity.

Decommissioning

Direct Effects

Decommissioning Alternative D would neither limit existing recreational opportunities nor restore any recreational opportunities. Further review would be required if new recreational opportunities developed in the project area, but none are currently planned (BLM 2010).

Indirect Effects

Decommissioning of Alternative D would not diminish access or availability of recreational opportunities in the project vicinity.

Mitigation Measures

Mitigation Measures VR-1 through VR-6 would also apply to Alternative D with respect to the transmission line component.

Residual Impacts and Unavoidable Adverse Effects

With implementation of Mitigation Measures VR-1 through VR-6 to reduce impacts to recreational users as a result of the altered viewshed and construction, the construction, operation and maintenance, and decommissioning of Alternative D would not result in any unavoidable adverse effects.

4.14.14 Alternative E – New Cross-Valley Alignment

Construction

Direct Effects

Construction of Alternative E would be located in an area that does not contain designated recreational areas or recreational activity, and its construction would not affect aforementioned recreational activities. Alternative E and related construction efforts would not inhibit any OHV routes.

Indirect Effects

Construction of Alternative E would not diminish access or availability of recreational opportunities in the project vicinity. Alternative E is located 2.25 miles from the nearest Joshua Tree Wilderness Area and 0.5 miles from the southern-most point of the Desert Lily ACEC. Noise impacts would not occur due to the distance between the Joshua Tree Wilderness Area, the Desert Lily ACEC, and Alternative E. Visual impacts of Alternative E when viewed from the Joshua Tree Wilderness Area would be minimal. Visual impacts of Alternative E when viewed from the southern-most point of the Desert Lily ACEC would result in adverse and unmitigable impacts because the alternative would result in a moderate to high level of visual change and would not meet applicable Interim VRM Class III objectives.

Operation and Maintenance

Direct Effects

Operation and Maintenance of Alternative E would be located in an area that does not contain designated recreational areas or recreational activity, and its operation would not affect aforementioned recreational activities. Operating and maintaining Alternative E would not inhibit any OHV routes.

Indirect Effects

Operation and Maintenance of Alternative E would diminish the recreational experience of users visiting the Desert Lily ACEC due to the adverse and unmitigable visual impacts.

Decommissioning

Direct Effects

Decommissioning Alternative E would neither limit existing recreational opportunities nor restore any recreational opportunities. Further review would be required if new recreational opportunities developed in the project area, but none are currently planned (BLM 2010).

Indirect Effects

Decommissioning of Alternative E would not diminish access or availability of recreational opportunities in the project vicinity.

Mitigation Measures

Mitigation Measures VR-1 through VR-6 would also apply to Alternative E with respect to the transmission line component.

Residual Impacts and Unavoidable Adverse Effects

Mitigation Measures VR-1 through VR-6 would reduce impacts to recreational users as a result of the altered viewshed and construction impacts. Nonetheless, residual impacts to recreational visitors to the Desert Lily ACEC would be the substantial diminishment of the visual quality of the experience. Implementation of Alternative E would result in an unavoidable adverse effect to the recreational experience in proximal locations to the Desert Lily ACEC during construction, and operation.

4.14.15 Cumulative Effects

Geographic Scope

The geographic extent for the consideration of cumulative effects to recreation is the local and regional recreational opportunities along the I-10 corridor/eastern Riverside County described in Section 4.1.4, Cumulative Scenario Approach. Tables 4.1-1 and 4.1-2 list existing and reasonably foreseeable projects in this area that would impact the regional recreational opportunities. Existing and reasonably foreseeable projects that would impact the local recreational opportunities include renewable projects such as the DSSF, the Silverado Power Solar Project, Desert Center 50 Solar Project, Palen Solar Power Project, Sol Orchard, and the Eagle Mountain Wind Project Met Towers and industrial projects such as the Eagle Mountain Pumping Plant, the Eagle Mountain Pumped Storage Project, the Eagle Mountain Landfill Project, Red Bluff Substation, DPV1, DPV2, and the Blythe Energy Project Transmission Line.

Table 4.14-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Recreation	I-10 Corridor between Indio and Blythe	Impacts to recreational users, impacts to the existing character of the project site	All projects listed in Table 4.1-1 and 4.1-2 for regional impacts. The following projects for local recreational impacts: • Desert Sunlight Solar Farm • Silverado Power Solar Project • Desert Center 50 Solar Project • Palen Solar Power Project • Sol Orchard • Eagle Mountain Wind Project Met Towers • Eagle Mountain Pumping Plant • Eagle Mountain Pumped Storage Project • Eagle Mountain Landfill Project • Red Bluff Substation • DPV1 • DPV2 • Blythe Energy Project Transmission Line.

Cumulative Effects Analysis

Existing conditions within the cumulative effects area reflect a combination of natural conditions and related recreational opportunities, and the effects of past actions. The existing cumulative conditions near the project study area include the existing projects listed in Table 4.1-1 (Existing Projects Along the I-10 Corridor [Eastern Riverside County]) in Section 4.1.4, Cumulative Scenario Approach. These include existing recreational opportunities offered by BLM such as campgrounds and the Midland Long-Term Visitor Area.

The majority of effects to on-site and off-site recreational users resulting from construction and operation of the proposed project and alternatives would be minimal. As noted above, the proposed project and alternatives would be near Joshua Tree Wilderness. While the construction of the project is not expected to reduce visitation to the Wilderness Area, it is expected to substantially diminish the wilderness experience in proximal locations in which the project is visible within the Coxcomb Mountains throughout the two-year construction period and the 30- year operations period.

The Chuckwalla Valley Raceway, a private-use raceway, provides some recreational opportunities in the project vicinity. Operation of the raceway would not be affected by the proposed project and alternatives. Existing projects have not had a significant adverse cumulative effect on recreation. After decommissioning of the project, the project site would be available again for active or passive recreational use. Accordingly, the potential for incremental, project-specific, effects to result in a cumulative effect on recreation with other past, present, or reasonably foreseeable future actions is low.

Foreseeable projects in the project area are listed in Table 4.1-2 (Foreseeable Projects along the I-10 Corridor [Eastern Riverside County]). As shown in Table 4.1-2, about 30 projects have been proposed in the project study area. Nearly half of these have been approved or are under construction. Twenty of the projects are either renewable energy projects or transmission

projects associated with renewable energy. Seven of the energy projects in Table 4.1-2 are in the vicinity of the proposed project: Palen Solar Power Project, Desert Sunlight Solar Project (currently under construction), Desert Center 50, Sol Orchard, Silverado Power I, II, and III, Eagle Mountain Wind Project Met Towers, and Eagle Mountain Pumped Storage Project. These projects would add large and small-scale industrial, utility-related and other uses in the region, resulting loss of access to lands that are currently used for recreation. The DSSF is adjacent to the DHSP solar facility site, immediately to the north; its construction has resulted in the closure of small sections of OHV trails.

The proposed project and alternatives would alter the existing character of the project study area, and it may affect surrounding recreational uses as a result of the altered viewshed, including a substantial adverse effect on the wilderness experience of dispersed and occasional visitors to the Joshua Tree Wilderness Area. Three of the energy projects in Table 4.1-2 are as near or nearer to the Joshua Tree Wilderness Area, Desert Sunlight Solar Project, Eagle Mountain Wind Project Met Towers, and Eagle Mountain Pumped Storage Project. These projects would result in noise and visual impacts on the Joshua Tree Wilderness Area similar to or greater than the Proposed Action. While the construction of the projects is not expected to reduce visitation to the Wilderness Area, it is expected to substantially diminish the wilderness experience in proximal locations of the wilderness area within the Coxcomb Mountains where the Proposed Action and reasonably foreseeable future projects are visible throughout the duration of construction, operation, and decommissioning of the cumulative projects.

Within the larger California Desert District area, 567,882 acres potentially available for recreational use could be lost to solar development and an additional 433,721 acres could be lost to wind development (BLM 2011). However, most of these projects in the California Desert District receive limited recreational use (BLM 2011). Within the I-10 corridor area used in this analysis (see Table 4.1-2), foreseeable projects could restrict or eliminate recreational use of over 52,000 acres. The recreation effects of the DHSP in combination with past, present, and proposed and reasonably foreseeable projects in eastern Riverside County would be substantial. These cumulative effects could substantially impact the recreation opportunities and experiences of users, communities, and regional populations.

The recreational effects for Alternatives 5, through 7 and C through E would be essentially the same as described for the proposed project and would represent substantial adverse cumulative effects. The No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. In addition, Alternative B would not contribute to cumulative effects to recreation, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

4.14.16 CEQA Considerations

CEQA Significance Criteria

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. Under CEQA, the proposed project and alternatives would have significant impacts on recreation if they would:

REC-1 Increase the use of neighborhood and regional recreation facilities such that the physical deterioration of the facilities would be substantial or accelerated; or

REC-2 Include recreation facilities or require the construction or expansion of recreation facilities that might have an adverse physical effect on the environment.

CEQA Significance Determination

Alternatives 1, 2, 3, and A would not have any impacts related to recreation. Under these alternatives the DHSP would not be approved and would not be constructed. Lands would remain in their existing use.

As described above, construction, operation, and decommissioning of the proposed project and Alternatives 5 through 7 and B through E would not substantially increase the use of recreation facilities. Any current recreational use of the project site is extremely minimal; therefore, very little recreational use would be displaced by the DHSP. During construction, workers might relocate to the project vicinity and use local recreation facilities. However, minimal recreational use by a small number of temporary construction workers over the two-year construction period would not lead to substantial or accelerated physical deterioration of recreational facilities (Significance Criterion REC-1). A less-than-significant impact would occur. The proposed project and alternatives would not construct any recreation facilities that might adversely affect the environment (Significance Criterion REC-2). No impact would occur.

Cumulative Impacts. As described in Section 4.14.15, the effects of existing and proposed projects in the vicinity of the DHSP could have cumulatively considerable impacts on the Joshua Tree Wilderness Area and on recreational use of land in the I-10 corridor. The contribution of the DHSP to cumulative impacts would be significant because it would change the existing character of the project study area and result in a diminished wilderness experience in proximal locations within the Coxcomb Mountains.

Alternative B would not contribute to cumulative effects to recreation, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

4.15 SOCIAL AND ECONOMIC

4.15.1 Methodology for Analysis

In Sections 4.15.3 through 4.15.14, the direct and indirect effects relevant to social and economic concerns for each alternative are assessed. The baseline conditions for this analysis are presented in Section 3.15. The analysis provided in Section 4.15.15 describes the potential cumulative social and economic effects as a result of the proposed project and alternatives in combination with other plans, policies, and projects that would occur in the area, as described in Section 4.1.

4.15.2 Applicant Measures

The following Applicant Measures (AMs) have been incorporated as design features of the proposed project and shall be implemented to reduce adverse impacts associated with the project. In some cases, mitigation measures further clarify or expand on AM reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures imposed and the following AMs, the mitigation measures take precedence.

AM S-1 **Notification**. The public shall be notified of project activities and scheduling to inform the public of projected effects on the surrounding area. This notification will provide the public with the opportunity to plan their personal and business activities appropriately.

AM S-2 **Minimize Visual Impacts of Gen-Tie**. Project Applicant will align gen-tie lines along existing linear features (such as Kaiser Road) to minimize the social effects of potential visual effects.

4.15.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the California Desert Conservation Area Plan 1980, as amended (CDCA Plan). As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects from the project would not occur.

4.15.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Plan. No effects from the DHSP would occur.

4.15.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.15.6 Alternative 4 – Proposed Solar Project

Construction

Direct Effects

Changes to Local Employment or Labor Force. Construction employment for Alternative 4 would include skilled or semi-skilled positions including laborers, craftsmen, supervisory personnel, supply personnel, and construction management personnel. As indicated in Table 3.15-4, Riverside and San Bernardino Counties are home to a large construction workforce in proportion to the project labor force requirements. Workers from Riverside and San Bernardino Counties would be recruited as much as practicable, but workers from other nearby counties might also contribute to the project.

The maximum required construction workforce of 250 personnel required for the proposed solar facility would comprise 0.4 percent of the total combined construction workforce of Riverside County (62,194 persons) and 0.5 percent of the total combined construction workforce of San Bernardino County (53,914 persons) (BEA 2011). Although the immediate surroundings of Alternative 4 have a small population, local construction workforces are generally available in the region because of larger surrounding population centers. Job fairs would be held in neighboring communities, including Palm Springs, Desert Center, and Blythe. A majority of site workers are expected to travel from these communities, with a minimum number of employees traveling on a weekly or bi-weekly basis from the Applicant's headquarters in San Diego. Local highways provide access to the site from cities throughout the region. It is 72 miles (less than a 1.5-hour drive) between Palm Springs and Desert Center, and 49 miles (less than a 1-hour drive) from both Indio and Blythe to Desert Center. Therefore, few, if any, workers are expected to relocate to the area permanently for construction. The majority of these temporarily relocated workers likely would commute on a daily basis between home and the project study area. It is unlikely that they would relocate their families for the duration of construction. Based on the data provided in Section 3.15, in-migration of the construction workforce could be accommodated within the available hotel rooms and housing vacancies in the nearby cities of Blythe and Indio, which have approximately 35 lodging facilities, offering an average of 55 rooms per facility. Because construction workers would be expected to be from the neighboring communities or to be accommodated in the available hotel and housing vacancies, minimal increase in utilities would be expected. Please see Section 4.18, Transportation and Public Access, for a discussion regarding construction traffic.

Changes in Revenue. Employment of construction personnel would be beneficial to local businesses and the regional economy through increased expenditure of wages for goods and services. Construction personnel would be drawn whenever possible from local populations in Riverside

and San Bernardino Counties, creating new temporary employment in these counties. A limited number of construction personnel would require temporary housing, likely in local hotels or rentals, and would purchase food, beverages, and other commodities, which would provide economic benefit to the local economy.

Quality of Life. The influx of the construction workforce would alter the isolated, quiet, and sparsely populated character of the communities surrounding the solar facility site during the construction period, which would be a temporary effect to the quality of life to residents of Desert Center, Lake Tamarisk Park, and Eagle Mountain. Scoping comments noted that the influx of people would potentially result in law enforcement problems and an increase in the use of existing infrastructure. As discussed above, the majority of construction workers for the project would be expected to commute daily to the site from neighboring communities. Because most workers would travel to the site from their homes, local residents may have little daily interaction with the workers, and the workers are unlikely to result in law enforcement problems or result in an increase in the use of existing infrastructure. It is possible that some construction workers could choose to commute from their homes on a weekly basis and stay within the local area at local hotels/motels, rent homes, or look for other types of accommodations. In this case, after the workday is over, these individuals would be more likely to interact with existing residents at local businesses or community facilities; however, they would still be expected to abide by Riverside County laws and would not be expected to result in an increase in law enforcement problems. Given the limited number of construction workers expected to stay in the local area during the work week, the presence of these individuals would not be expected to result in substantial or long-term adverse effects to the local area's social composition and character.

Indirect Effects

Changes to Local Employment or Labor Force. The proposed solar facility would not be expected to result in changes to local employment or labor force needs. A fire prevention plan would be in place during construction and would ensure adequate access to the project site in case of emergencies. It would protect against the possibility of fires generated by construction and operation of the DHSP, which would minimize the need for additional fire protection to the site. On-site security, including fencing, lighting, motion detectors, and cameras in key locations would minimize increased demand on law enforcement. During operations security lights would use motion sensor technology that would be triggered by movement at a human's height during maintenance or emergency activities. Sensors on the security fencing would alert security personnel of possible intruders. The Applicant would also require all new employees to complete health and safety training and follow standard construction safety measures during construction of Alternative 4, which would minimize the incidence of increased demand for hospital or emergency services. Given that the construction workforce for Alternative 4 would most likely already be employed in the regional construction industry in Riverside and San Bernardino Counties and would be subject to similar safety risks and protection measures as a function of this employment, no increase in the demand on hospital or emergency services within the county are anticipated.

Changes in Revenue. No business uses occur in the immediate vicinity of Alternative 4, and the project would not require the removal or relocation of any businesses. Effects on local businesses would potentially result from degradation of views, views of construction equipment and activity, vehicular or pedestrian access restrictions and increased traffic and associated air and

noise emissions, land use, air quality, and noise effects, or health and safety concerns (such as electromagnetic frequencies [EMF]). These issues are analyzed in this document in Sections 4.19 (Visual Resources), 4.11 (Lands and Realty), 4.12 (Noise), 4.18 (Transportation and Public Access), and 4.13 (Public Health and Safety). As short-term construction-related effects, these effects would not be substantial or have been mitigated such that they would not be substantial, any associated loss of local business revenue impacts would be minimal. In addition, these short-term effects would not displace existing businesses and would result in minimal revenue impacts. Therefore, no additional mitigation measures are required outside of those presented in Sections 4.19 (Visual Resources), 4.11 (Lands and Realty), 4.12 (Noise), 4.18 (Transportation and Public Access), and 4.13 (Public Health and Safety) to mitigate potential effects that would result in a substantial change to local business revenues.

Operation and Maintenance

Direct Effects

Changes to Local Employment or Labor Force. Operation and maintenance of Alternative 4 would require a workforce of up to 8 full-time staff year-round. This workforce would constitute < 0.01 percent of the total combined utilities workforce of the Riverside and San Bernardino County area (275,000 persons) (CAEDD 2011). With less than two-hours of driving between Desert Center and Palm Springs, Indio, and Blythe, it is anticipated that few workers would relocate to the area permanently. Please see Section 4.18, Transportation and Public Access, for a discussion of operational traffic.

Changes in Revenue. Employment of operation and maintenance personnel would be beneficial to local businesses and the regional economy through increased expenditure of wages for goods and services. Personnel would be drawn from local populations in Riverside and San Bernardino Counties, creating new employment in these counties. A limited number of personnel would require housing and would purchase food, beverages, and other commodities, which would provide economic benefit to the local economy in terms of increased revenues.

Indirect Effects

Changes in Property Value. There is concern that solar facilities might affect property values in nearby communities. During the public scoping process for the proposed DHSP, the public expressed interest and concern regarding the potential effects of the project on property values. Other agencies, such as the California Public Utilities Commission (CPUC) and California Energy Commission (CEC) have noted a high level of public concern associated with the siting of power plant projects, transmission lines, and other locally undesirable land uses (LULU) and potential effects on property values. Property values might decline in some locations as a result of the deterioration in aesthetic quality, increases in noise, real or perceived health effects, congestion, or social disruption. In other locations, property values might increase because of access to employment opportunities associated with solar development.

Numerous studies of LULUs, such as wind and nuclear energy generation and transmission line projects, conclude that the potential for environmental concerns associated with large-scale energy projects to have an effect on property value is usually smaller than anticipated and essentially impossible to quantify due to the individuality of properties and their respective neighborhoods, as well as differences in the personal preferences of individual buyers and the

weight of other factors that contribute to a person's decision to purchase a property (Hoen et al. 2009, Metz et al. 1997, Office of Energy Efficiency and Renewable Energy and Bureau of Land Management 2010, Sterzinger et al. 2003). Studies indicate that other property-specific factors such as neighborhood features, square footage, size of lot, and irrigation potential are substantially more likely than the presence of energy infrastructure to be major determinants of the sales price of property (McCann 1999). Across the board, studies have generally concluded that over time, potential adverse effects to property value tend to diminish to a point of being negligible within five years; the studies determine that this decreasing effect is most likely due to increased screening of facilities over time, as vegetation increases in size, as well as diminished public sensitivity to the facility proximity, particularly resulting from the absence of adverse publicity.

As demonstrated by the studies discussed above, factors that have the potential to affect property value are numerous and varied; as a result, it is not possible to identify exactly how the project would potentially affect private property values. However, because the conclusions of the Kinnard-Dickey (1995) paper and the Hoen, et al. (2009) paper are applicable to this analysis, it is possible to say that property-specific factors such as neighborhood features, square footage, size of lot, and water availability are more likely to be major determinants in property values than the presence of a solar generating facility such as the DHSP. It is not unreasonable to assume that some aspect of project construction and/or operation and maintenance could potentially affect private property values. However, as discussed above, the effects of industrial facilities on property value are generally smaller in comparison to other relevant factors and generally diminish within five years to be negligible.

Decommissioning

Socioeconomic effects that would result from decommissioning Alternative 4 are similar to those described for construction. Decommissioning Alternative 4 would likely require a similar number of workers during a similar timeframe to properly shut down and dismantle the solar field. Decommissioning and reclamation would be subject to a site-specific review when the facility reaches the end of its useful life.

Mitigation Measures

No mitigation measures are identified or required to reduce the effects below the level of significance.

Residual Impacts and Unavoidable Adverse Effects

All adverse effects on socioeconomics resulting from construction, operation and maintenance, or decommissioning of Alternative 4 would be avoided or substantially reduced.

4.15.7 Alternative 5 – Solar Project Excluding WHMA

Construction

Though Alternative 5 would be smaller in size than Alternative 4, this reduction in scale would not be substantial enough to reduce social and economic effects of construction. The effects of construction would be the same as those identified under Alternative 4.

Operation and Maintenance

The social and economic effects of operating and maintaining Alternative 5 would be the same as those identified under Alternative 4.

Decommissioning

The social and economic effects of decommissioning Alternative 5 would be the same as those identified under Alternative 4.

Mitigation Measures

No mitigation measures are identified or required to reduce the effects below the level of significance.

Residual Impacts and Unavoidable Adverse Effects

All adverse effects on socioeconomics resulting from construction, operation and maintenance, or decommissioning of Alternative 5 would be avoided or substantially reduced.

4.15.8 Alternative 6 – Reduced Footprint Solar Project

Construction

Though Alternative 6 would be smaller in size than Alternative 4, this reduction in scale would not be substantial enough to reduce social and economic effects of construction. The effects of construction would be the same as those identified under Alternative 4.

Operation and Maintenance

The social and economic effects of operating and maintaining Alternative 6 would be the same as those identified under Alternative 4.

Decommissioning

The social and economic effects of decommissioning Alternative 6 would be the same as those identified under Alternative 4.

Mitigation Measures

No mitigation measures are identified or required to reduce the effects below the level of significance.

Residual Impacts and Unavoidable Adverse Effects

All adverse effects on socioeconomics resulting from construction, operation and maintenance, or decommissioning of Alternative 6 would be avoided or substantially reduced.

4.15.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Construction

Though Alternative 7 would be smaller in size than Alternative 4, this reduction in scale would not be substantial enough to reduce social and economic effects of construction. The effects of construction would be the same as those identified under Alternative 4.

Operation and Maintenance

The social and economic effects of operating and maintaining Alternative 7 would be the same as those identified under Alternative 4.

Decommissioning

The social and economic effects of decommissioning Alternative 7 would be the same as those identified under Alternative 4.

Mitigation Measures

No mitigation measures are identified or required to reduce the effects below the level of significance.

Residual Impacts and Unavoidable Adverse Effects

All adverse effects on socioeconomics resulting from construction, operation and maintenance, or decommissioning of Alternative 7 would be avoided or substantially reduced.

4.15.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated as part of the Proposed Action. Therefore, no social or economic effects related to construction, operations and maintenance, or decommissioning of the gen-tie line would occur.

Mitigation Measures

No mitigation measures for social and economic effects are required for Alternative A.

Residual Impacts and Unavoidable Adverse Effects

No social or economic effects would result from the implementation of Alternative A.

4.15.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Construction

Changes to Local Employment or Labor Force. Construction of gen-tie line Alternative B would employ fewer workers from the regional economy than the proposed solar generating facility and alternatives. The workforce for Alternative B is expected to average 30 employees over the 12-month gen-tie line construction period, with a peak of 65 employees. As with the solar field alternatives, this additional labor force would constitute a very small fraction of the total combined construction workforce of Riverside and San Bernardino Counties, and few, if any, workers are expected to relocate to the area permanently for construction.

Changes in Revenue. As with the solar field alternatives, employment of construction personnel would be beneficial to local businesses and the regional economy. Changes in revenue from Alternative B would be similar to those described in Alternative 4, but proportionally smaller given the smaller workforce required for Alternative B.

Quality of Life. Effects of Alternative B on quality of life would be similar to those described under Alternative 4, but proportionally smaller given the smaller workforce required for Alternative B.

Indirect Effects

Changes to Local Employment or Labor Force. Alternative B would not be expected to result in changes to local employment or labor force needs. The fire prevention plan that would be in place during construction of solar field alternatives would also apply to construction of Alternative B, and would minimize the demand that this construction would place on the California Department of Forestry and Fire Protection. All new employees working on Alternative B would be required to complete health and safety training and follow standard construction safety measures during construction, which would minimize the incidence of increased demand for hospital or emergency services. Given that the small construction workforce for Alternative B would most likely already be employed in the regional construction industry in Riverside and San Bernardino Counties and would be subject to similar safety risks and protection measures as a function of this employment, no increase in the demand on hospital or emergency services within Riverside County are anticipated.

Changes in Revenue. No business uses occur in the immediate vicinity of Alternative B, and the alternative would not require the removal or relocation of any businesses. Effects on local businesses would potentially result from degradation of views, views of construction equipment and activity, vehicular or pedestrian access restrictions, land use, air quality, and noise effects, or health and safety concerns (such as electromagnetic frequencies [EMF]). These issues are analyzed in this document in Sections 4.19 (Visual Resources), 4.11 (Lands and Realty), 4.12 (Noise), 4.18 (Transportation and Public Access), and 4.13 (Public Health and Safety). Effects from these issues would be the same as those described under Alternative 4, but proportionally smaller. As stated in Alternative 4, no additional mitigation measures are required outside of those presented in 4.19 (Visual Resources), 4.11 (Lands and Realty), 4.12 (Noise), 4.18 (Transportation and Public Access), and 4.13 (Public Health and Safety) to mitigate potential effects that would result in a substantial change to local business revenues.

Operation and Maintenance

There would be no new operations workforce associated with Alternative B beyond those associated with the solar field alternatives, and there would be no additional effects on population, housing, employment, income, or environmental justice populations associated with the operation of Alternative B. Removal of larger vegetation that could inhibit access to Alternative B would also reduce the likelihood of fire, which would minimize the demand potentially placed on the California Department of Forestry and Fire Protection.

Decommissioning

Effects resulting from decommissioning Alternative B are similar to those described under the construction phase.

Mitigation Measures

No mitigation measures are identified or required to reduce the effects below the level of significance.

Residual Impacts and Unavoidable Adverse Effects

All adverse effects on socioeconomics resulting from construction, operation and maintenance, or decommissioning of Alternative B would be avoided or substantially reduced.

4.15.12 Alternative C – Separate Transmission Towers within Same ROW

Construction

The infrastructure required for Alternative C is the same as that for Alternative B; the two alternatives would share the same ROW and follow the same path. Therefore, social and economic effects of construction of Alternative C would be identical to those described for Alternative B.

Operation and Maintenance

Social and economic effects of operating and maintaining Alternative C would be identical to those described for Alternative B.

Decommissioning

Social and economic effects of decommissioning Alternative C would be identical to those described for Alternative B.

Mitigation Measures

No mitigation measures are identified or required to reduce the effects below the level of significance.

Residual Impacts and Unavoidable Adverse Effects

All adverse effects on socioeconomics resulting from construction, operation and maintenance, or decommissioning of Alternative C would be avoided or substantially reduced.

4.15.13 Alternative D – Cross-Valley Alignment

Construction

Alternative D would require nearly identical workforce, construction, and operation activities as Alternative B. Therefore, the social and economic effects of construction of Alternative D are similar to those described under Alternative B. However, Alternative D would occur on a higher proportion of previously disturbed, private land, parallel to an existing SCE transmission line reducing its effects on local quality of life.

Operation and Maintenance

The effects resulting from operating and maintaining Alternative D are similar to those discussed under Alternative B.

Decommissioning

The effects resulting from decommissioning Alternative D are similar to those discussed under Alternative B.

Mitigation Measures

No mitigation measures are identified or required to reduce the effects below the level of significance.

Residual Impacts and Unavoidable Adverse Effects

All adverse effects on socioeconomics resulting from construction, operation and maintenance, or decommissioning of Alternative D would be avoided or substantially reduced.

4.15.14 Alternative E – New Cross-Valley Alignment

Construction

Alternative E would require nearly identical workforce, construction, and operation activities as Alternative B. Therefore, the social and economic effects of construction of Alternative E are similar to those described under Alternative B.

Operation and Maintenance

The effects resulting from operating and maintaining Alternative E are similar to those discussed under Alternative B.

Decommissioning

The effects resulting from decommissioning Alternative E are similar to those discussed under Alternative B.

Mitigation Measures

No mitigation measures are identified or required to reduce the effects below the level of significance.

Residual Impacts and Unavoidable Adverse Effects

All adverse effects on socioeconomics resulting from construction, operation and maintenance, or decommissioning of Alternative E would be avoided or substantially reduced.

4.15.15 Cumulative Effects

The proposed project and alternatives would not cause existing housing or persons to be displaced or necessitate the construction of replacement housing elsewhere. In addition, there would be no impact from construction workers requiring housing that exceeds the supply of local

housing or temporary housing facilities and minimal potential changes in the demand for labor or in local employment. As growth has been accounted for in various local and regional plans and projections and no changes to that growth would be likely to occur as a result of the proposed project and alternatives, displacement of and demand for housing and changes in the local labor market would not be considered as cumulative effects and are not discussed further. A cumulative effect would result if the interaction among the effects of the Proposed Action and other past, present, and reasonably foreseeable actions combined.

Geographic Scope

The geographic scope for the analysis of effects on socioeconomics consists of Riverside County and the cities contained therein. This geographic extent is appropriate because socioeconomic factors such as public services and utilities are provided by local jurisdictions or districts, and the regional labor force is expected to come primarily from within Riverside County and neighboring San Bernardino County. Table 4.1-1 and 4.1-2 provide lists of projects within the geographic extent for the socioeconomics cumulative scenario. Table 4.15-1 provides a list of the existing and foreseeable projects that could combine with the DHSP to result in a cumulative effect.

Table 4.15-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Social and Economic Setting	Riverside County and the cities therein	Impacts to the labor force, impacts on local businesses and residents	All projects listed in Table 4.1-1 and 4.1-2 for regional impacts. Regarding labor force the follow projects were considered: • Desert Sunlight Solar Farm • Silverado Power Solar Project • Palen Solar Power Project • Blythe Solar Power Project • NextEra McCoy • McCoy Soleil • Genesis Solar Energy Project • Rice Solar Energy Project • Blythe Airport Solar I Project • Desert Quartzite • Blythe Mesa Solar I • Rio Mesa Solar Electric

Cumulative Effects Analysis

Past development and population growth within Riverside County have impacted employment, public services, utilities, and housing demands. Population increases have increased development in Riverside County (mainly in incorporated areas) expanded the demand for housing, and increased the available workforce. Additional development both increases pressure on existing public services and utility systems and provides additional infrastructure to increase capacity and change employment opportunities. Section 3.15, Socioeconomics, describes existing socioeconomic, public services, and utilities conditions within the affected counties and cities.

Tables 4.1-1 through 4.1-2 list past, present, and foreseeable projects in the I-10 corridor in eastern Riverside County. Over 30 projects are proposed in the project area, nearly half of which have been approved or are under construction, and of which about 19 are renewable energy projects. The Desert Sunlight Solar Farm Project (DSSF) is currently under construction immedi-

ately north of the proposed DHSP. At least twelve of the proposed projects would permanently disturb over 1,000 acres of land each. The present and foreseeable projects in the project area would significantly increase developed human use of land. These projects include industrial, commercial, and residential developments as well as energy and infrastructure projects.

Construction of the DHSP would draw on the same labor force as other projects listed in Table 4.1-2. Effects would be cumulatively considerable if they would have the potential to combine with similar effects of other past, present, or reasonably foreseeable projects. The largest overlap would be with the DSSF adjacent to the DHSP site. Construction of these two projects would likely occur at the same time, and other proposed projects, including the Genesis Solar Power Project, could also have overlapping construction periods. Although the DHSP (Alternatives 4 through 7 and Alternatives C through E) alone would not be likely to generate population in-migration because of the large available labor pool in Riverside County and neighboring San Bernardino County, the demand for construction employment generated by the proposed project in combination with the other proposed solar and other renewable development in the region could increase the demand for skilled labor beyond the capacity of the region to accommodate it. Under such circumstance, the unmet labor demand could result in in-migration that could change the character of the regional labor force and add new residents to the region.

An extensive cumulative analysis for the region has been recently conducted for the Blythe Solar Power Project (BSPP). This analysis specifically determined the average and peak construction labor needs and supply conditions under the extremely improbable circumstance that peak construction of 13 planned BLM solar projects (including the Blythe, Desert Sunlight, and Desert Harvest projects) occur at the same time (BSPP 2010). The cumulative effects scenario for the Blythe project is predominately the same as that determined for the proposed project and consequently, the analysis and findings of the BSPP are applicable for evaluating the cumulative effects for the project.

The total labor demand for near-term construction (2012 to 2017) of all 13 major solar projects is estimated to be roughly equivalent to an average of 5,000 full-time construction workers per year[1] (BSPP 2010). This level of construction worker labor demand would represent the minimum employment impact on the cumulative impact study area since it assumes that all the BLM solar project construction work would be evenly performed over the five-year period. The analysis also determined that a "worst case" maximum of 11,360 construction workers could be required in the region.

The actual cumulative construction labor force demand within the study region will likely be higher than the 5,000 workers, but likely considerably lower than the 11,360 maximum workers. The average construction period for BLM solar projects is estimated to be 3.6 years and some seasonality may be expected as developers favor construction during the region's cooler winter months. Therefore, conservatively assuming that all the projects would be completed within the

[1] Construction workforce was estimated from descriptions solar projects where available. The Blythe Solar Power Project (1,000 MW) would require an average of 604 workers with a peak of 1,004 workers; the Genesis Solar Energy Project (250 MW) would require an average of 646 workers with a peak of 1,085 workers; the Palen Solar Power Project (500 MW) would require an average of 566 workers with a peak of 1,145; the Desert Sunlight Solar Farm Project (550 MW) would require an average of 390 to 440 workers with a peak of 540; and Rice Solar Project would require an average of 280 workers with a peak of 438 workers.

five-year cumulative scenario period, the regional labor need for a realistic "worst case condition" would be for four projects to have peak labor needs during the same year.[2]

Given an average construction period of 3.6 years, it would also be expected up to 11 projects would be ongoing during an expected peak labor demand period of 2012 to 2014. Therefore, the peak construction labor demand for the cumulative analysis is estimated to be equivalent to the total construction labor demand for seven solar projects under average construction conditions and four solar projects during peak construction. Altogether, such a rate of solar construction would be expected to require a total of 7,180 construction workers for the various BLM solar projects along the I-10 corridor during the years of major solar project development (BSPP 2010).[3]

In addition, there could also be demand for construction workers from the planned non-BLM solar project proposed for the Blythe Airport (requiring an estimated 150 construction workers annually) and other solar development on private land in the Desert Center and Blythe regions. The future construction needs of the several other non-solar projects on BLM land in the region are not known but, altogether, reasonably could be expected to have an annual construction labor need roughly comparable to another solar project (i.e., 530 construction workers) (BSPP 2010).

Therefore, 7,860 construction workers is very conservatively estimated to represent the maximum likely future cumulative labor force demand from the region's planned solar and non-solar development. This estimate assumes all the identified projects would be developed within the five-year cumulative analysis period.[4] The proposed project's maximum potential contribution to this cumulative effect is estimated at 4 percent during its peak construction period. The DHSP's average contribution to the cumulative effect is estimated at 1 percent during its non-peak construction (BSPP 2010).

The total work force of skilled construction workers currently living in eastern Riverside County is estimated to be 15,000. Future demand for 7,860 construction workers would be equivalent to employment for more than half of the current skilled labor force. Such demand for construction workers far exceeds the current unemployed construction labor force but 850 additional skilled construction workers are expected to be added to the eastern Riverside County labor force by 2016. The cumulative labor force demand would still represent more than half the region's currently forecasted future skilled construction labor force (BSPP 2010).

Eastern Riverside County's current unemployed labor force is estimated to be 25,000. The construction worker demand would represent a 31 percent decrease in the regional study area's unemployment level. Although many of the region's currently unemployed residents may lack transferable skills or the physical aptitude to acquire the necessary skills required by the cumulative labor demand, many residents could be adequately trained to be employable. Furthermore,

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[2] The peak construction requirement typically occurs during mid-construction, suggesting that 2012 to 2014 would be most likely to experience peak labor demands.

[3] This assumes a typical 470 MW solar projects requiring 527 workers under average construction conditions and 873 workers during their shorter periods of peak construction.

[4] In actuality, construction labor shortages (and related wage escalation) would also be expected to become a possible constraint reducing the pace of future development.

some of the construction work would be more entry-level positions which may be suitable for less skilled workers.

Some of the regional workforce currently employed in other sectors could also have the capabilities to qualify for solar construction work. In such cases, some job transferring may occur, especially since the construction jobs may be expected to be relatively well-paid and attractive for many local residents. The less skilled or desirable jobs vacated by individuals transferring to construction work could be filled by other less skilled unemployed residents. Finally, the cumulative labor force demand on eastern Riverside County also could be partly reduced as projects located in more central Riverside County (such as the DHSP) would be closer to cities and potential workers outside the regional study area. Consequently, these projects could meet some of their labor needs from residents from Desert Hot Springs, Morongo Valley, or Banning.

Nonetheless, there could be demand for specialized construction trades that exceed the available labor supply for that specialty within eastern Riverside County. In such a case, it is assumed that those job positions would be filled by workers relocating into the region from elsewhere. Other social and economic impacts analyses for solar projects have suggested that a 15 percent rate of in-migration would be a conservative and reasonable assumption. Such a proportion of in-migration applied to the projected maximum future cumulative labor force demand would suggest that up to 1,165 construction workers [could require temporary housing in the region (BSPP 2010). The majority of these temporarily relocated workers likely would commute on a weekly basis between home and the project study area. It is unlikely that they would relocate their families for the duration of construction.

If construction workers were willing to commute 1 hour daily to the site, the supply of potential hotel/motel rooms would be greater than 1,925 (capacity of Blythe and Indio alone). Given that some workers would be willing to share rooms, the number of potential workers who could be accommodated would be even greater. In addition to the available lodging in the local area, there are also potentially considerable under-utilized homes in the local area that may be suitable for rent by construction workers seeking local housing. As shown in Table 3.15-3, 960 homes are currently estimated to be vacant in Blythe and another 5,593 local housing units may be available within Indio, totaling 6,553 in the 1 hour commute window and 102,507 units in Riverside County as a whole. Given that some construction workers could be willing to share homes to reduce their lodging costs, there would be more than sufficient temporary housing for an expected 1,165 construction workers.

Some of the solar developers might also choose to develop onsite housing facilities for their construction work forces. For example, on-site worker accommodations are planned as part of the Rice Solar project by its developer.[5] The Eagle Mountain Pumped Storage project near Desert Center is located at a former mine site that has housing previously used by mine workers. On-site accommodations would reduce the load on local hotels, motels, and houses.

In summary, there is potential for short-term adverse cumulative social and economic effects in the region associated with the demand for skilled construction labor for the dozen solar projects

[5] Development of temporary worker housing facilities is more likely to be possible at projects (such as Rice) that are located on private property.

proposed for future development within eastern Riverside County. Analysis suggests that future construction labor demand would be greatest from 2012 to 2014, and may be sufficient to exceed the existing local work force within eastern Riverside County; hence, there may be increased demand for temporary local housing from construction workers seeking to commute weekly to the local area. However, given the estimated availability of lodging and possible rental housing, it is expected that there will be adequate and suitable housing to meet any future construction worker temporary housing demand. Therefore, no adverse social or economic effects would be expected.

Socioeconomic effects on local businesses and residents adjacent to the project area or along construction transportation routes would result from visual impacts, vehicular or pedestrian access delays or detours, land use impacts, or health and safety concerns. The extent that these impacts would affect the perceived quality of life in the areas adjacent to the DHSP (Alternatives 4 through 7 and Alternatives C through E) would be minimized by making the public aware of construction timing, duration, and location so that they may better plan for construction-related access issues. It is expected that the added daily traffic from construction vehicles would not have a noticeable effect on traffic volumes given the existing volumes of car and truck traffic on I-10, even with partially overlapping construction periods for several projects. The cumulative effects of the DHSP (Alternatives 4 through 7 and Alternatives C through E) in combination with reasonably foreseeable projects on each of these resource areas are analyzed in this chapter in Sections 4.19 (Visual Resources), 4.11 (Lands and Realty), 4.12 (Noise), 4.18 (Transportation and Public Access), and 4.13 (Public Health and Safety). Any associated contribution to a short-term loss of local business revenue would not be cumulatively significant, and any contribution of DHSP (Alternatives 4 through 7 and Alternatives C through E) to perceived social effects due to construction activity along with the listed cumulative projects would be minor and temporary for the duration of the project construction.

Construction and operation of DHSP (Alternatives 4 through 7 and Alternatives C through E) would not contribute to temporary or permanent displacements of businesses or residents in Riverside County that could occur as a result of the projects identified in Table 4.1-2. In addition, the DHPS would contribute to local expenditures on materials and supplies for construction, which, in combination with other past, ongoing, and future projects, would generate expenditures, income, and employment in the local economy, stimulating economic growth.

The incremental effects of construction and operation of the DHSP (Alternatives 4 through 7 and Alternatives C through E) would not have a substantial effect on cumulative socioeconomic and environmental justice resources.

The No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. In addition, Alternative B would not contribute to cumulative socioeconomic and environmental justice effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

4.15.16 CEQA Considerations

CEQA Significance Criteria

Under CEQA, the proposed project would have a significant impact on Socioeconomics if it would:

SE-1 Displace substantial numbers of people or existing housing on a permanent basis, necessitating the construction of replacement housing outside the local region;

SE-2 Induce short-term or long-term population growth to an extent that could not be accommodated by local housing, local services, and infrastructure, including:

SE-2a Generating solid waste or wastewater that exceeds the capacity of existing facilities to accommodate;

SE-3b Requiring the construction of new public service facilities or require the expansion of existing facilities to accommodate an increased need for fire protection, police protection, schools, or other public services;

SE-3 Cause a substantial long-term reduction in revenue for local businesses, government agencies, or Indian tribes;

SE-4 Result in a substantial reduction in the employment and incomes of local residents;

SE-5 Substantially alter the lifestyles or quality of life of populations using or residing in proximity to the proposed project;

SE-6 Result in a barrier between local residents and the local services and facilities used by these residents;

SE-7 Conflict with applicable land use plans and policies associated with socioeconomics, public services, or utilities; or

SE-8 Disrupt existing utility systems.

For the Proposed Action, all of the CEQA significance criteria listed above were determined to be inapplicable or to result in no impact as explained below.

CEQA Significance Determination

Alternative 1. Under Alternative 1, the DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan. Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, no social or economic impacts would occur.

Alternative 2. Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the Desert Harvest Solar Project would not be constructed on

the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No social or economic impacts from the Desert Harvest Solar Project would occur.

Alternative 3. Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the Desert Harvest Solar Project would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No social or economic impacts from the Desert Harvest Solar Project would occur.

Alternative 4. As described above in Section 4.15.6, Alternative 4 would not displace substantial numbers of people or housing (SE-1) and would not require additional housing infrastructure (SE-2): the workforce would be small relative to regional supply, most workers would commute from off-site, current accommodations are adequate to support potential in-migration, and the bulk of the workforce would be present during construction activities only. Given this, project impacts would not generate unmanageable solid waste or wastewater (SE-3b). The influx of potential consumers would likely generate economic benefit for local community through increased purchase of goods and services, and would contribute to local employment (SE-4). The small number of temporary workers is not likely to substantially lower quality of life of local residents (SE-5) or remove residents from local services (SE-6).

The project's fire management plan, security lighting, and health and safety training would minimize need for expansion of public services (SE-3). Utility services would also operate uninterrupted during construction, operation and maintenance, and decommissioning of Alternative 4 and would not be impacted by its presence (SE-8). The project location on BLM multiple use class M land would not conflict with any land use plans associated with socioeconomics, public services, or utilities (SE-7).

As described in Section 4.15.15, though some minor cumulative impacts could occur during the period of construction, the effects of construction and operation of the DHSP would not have a cumulatively considerable impact on socioeconomic resources when combined with the past, existing, and future projects identified in Table 4.1-1 and Table 4.1-2.

Alternative 5. As described in Section 4.15.7 of this EIS, potential social and economic effects of Alternative 5 would be largely the same as under Alternative 4; as such, potential social and economic impacts that would occur during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative 4, and would be less than significant with no mitigation required.

Alternative 6. As described in Section 4.15.8 of this EIS, potential social and economic effects of Alternative 6 would be largely the same as under Alternative 4; as such, potential social and economic impacts that would occur during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative 4, and would be less than significant with no mitigation required.

Alternative 7. As described in Section 4.15.8 of this EIS, potential social and economic effects of Alternative 7 would be largely the same as under Alternative 4; as such, potential social and economic impacts that would occur during construction, operation and maintenance, and decom-

missioning would be the same as described above for Alternative 4, and would be less than significant with no mitigation required.

Alternative A. Under Alternative A, no gen-tie line would be constructed and no plan amendment would be issued. If this No Action Alternative were selected, the construction and impacts of the gen-tie line would not occur, and BLM would continue to manage the site under the existing land use designation in the CDCA Plan. Because there would be no amendment to the CDCA Plan and no gen-tie line approved for the site under this alternative, it is expected that proposed tower locations and pull sites would continue to remain in their existing conditions, with no new structures constructed or operated on and no ground disturbance. As a result, no social or economic impacts would occur.

Alternative B. As described in Section 4.15.11 of this EIS, potential social and economic effects of Alternative B would be of the same type as those described under Alternative 4. However, because of the smaller workforce and scope of construction operations, the social and economic impacts of Alternative B would be substantially less intense than those described under Alternative 4. As such, social and economic impacts of construction, operation and maintenance, and decommissioning would be less than significant with no mitigation required.

Alternative C. As described in Section 4.15.12 of this EIS, potential social and economic effects of Alternative C would be the same as under Alternative B; as such, potential social and economic impacts that would occur during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative B, and would be less than significant with no mitigation required.

Alternative D. As described in Section 4.15.13 of this EIS, potential social and economic effects of Alternative D would be largely the same as under Alternative B; as such, potential social and economic impacts that would occur during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative B, and would be less than significant with no mitigation required.

Alternative E. As described in Section 4.15.14 of this EIS, potential social and economic effects of Alternative E would be largely the same as under Alternative B; as such, potential social and economic impacts that would occur during construction, operation and maintenance, and decommissioning would be the same as described above for Alternative B, and would be less than significant with no mitigation required.

Growth-Inducing Effects

Section 15126.2(d) of the State CEQA Guidelines provides the following guidance on growth-inducing impacts: a project is identified as growth inducing if it "could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment."

Potential growth-inducing components of the proposed project addressed in this section relate to employment and potential local population growth, and increased power generation and potential regional population growth.

Employment and Population Growth

Construction Workforce. The proposed project would require an average construction workforce of 100 workers per day, with a peak number of workers estimated at 250 workers. Workers are expected to be hired primarily from Riverside County, San Bernardino County, and some from adjacent counties, with the majority of the workforce anticipated from Palm Springs, Desert Center, and Blythe.

The vacancy rate and the availability of temporary accommodation in the project study area indicate that the area has the capacity to temporarily house this workforce. Because the project study area has sufficient available hotel and housing vacancies, temporary direct and indirect population growth impacts would not result from worker relocation.

As shown in Section 3.15.2 (Existing Conditions, Employment and Income), the employment profile of the project study area, 2008, Riverside County has a construction labor force of 62,194 workers, and San Bernardino County has a construction labor force of 53,914. A maximum of 250 workers hired from within these counties would represent 0.5 percent of the total construction labor force of each county. While a single project utilizing 0.5 percent of the total construction labor force of the project study area would be considered a substantial demand, considering the high unemployment rate in the area, this would be a beneficial impact in the project study area. As a temporary component, the construction phase would not trigger additional population growth in the area.

Operational Workforce. Operation of the proposed project would require up to 8 full-time staff. Employees are expected to be drawn from the labor force within Riverside or San Bernardino County. While it is speculative to determine where the full-time staff would choose to live, if the entire staff of 8 were hired from outside the project study area, up to 8 households could potentially relocate to the area, representing a population increase of an estimated 23 individuals or a 0.001 percent increase in Riverside County's population. Considering the less-than-2-hour drive between Desert Center and Palm Springs, Indio, and Blythe, it is anticipated that few workers would relocate to the area permanently.

Increased Power Generation

While the proposed project would contribute to energy supply, which indirectly supports population growth, development of the proposed project is a response to the State's need for renewable energy to meet its Renewable Portfolio Standard. Unlike a gas-fired power plant, the proposed project is not being developed as a source of base-load power that would typically be developed to support a growth in demand for electricity. The power generated would be added to the State's electricity grid, with the intent that it would displace fossil fuel fired power plants and their associated greenhouse gas emissions.

Riverside County planning documents permit and anticipate a certain level of growth, along with attendant growth in energy demand. The County General Plan Land Use Element addresses growth states that Riverside County has a vision future growth should be directed to areas that are well served by public facilities and services and preserve significant environmental features such as drainage ways, lands subject to extreme natural hazards, or lands that offer scenic beauty (Riverside County 2003).

The proposed project would supply energy to accommodate and support existing demand and projected growth, but it would not foster any new growth, because (1) the additional energy would be used to ease the burdens of meeting existing statewide energy demands within and beyond the area of the project; (2) the energy would be used to support already-projected growth; or (3) the factors affecting growth are so diverse that any potential connection between additional energy production and growth would necessarily be too speculative and tenuous to merit extensive analysis.

4.16 ENVIRONMENTAL JUSTICE

4.16.1 Methodology for Analysis

In the analysis, the percentages of minority and low-income populations were examined for the area in the vicinity of the proposed Desert Harvest Solar Project (DHSP). For purposes of consistency and in compliance with the BLM guidelines, U.S. Census data are used to determine minority and low-income population percentages in the affected area. The unit of analysis of potential impact on minority populations and low-income populations is the census tract or block group. After an initial screening-level analysis of the project area to determine low-income and minority percentage areas, a jurisdictional screening-level analysis is conducted. If the jurisdiction has a population of 50 percent or greater for either the low-income or minority categories, it is identified for more detailed analysis. Similarly, if the jurisdiction has a population meaningfully greater (50 percent or greater) than the minority or low-income population percentage in the general population of the jurisdiction, it is identified for more detailed analysis. Identification of an area which would be disproportionately affected by the project does not by itself constitute an environmental justice impact. The conclusions of the analyses of effects for all resources and issues throughout Chapter 4 are then reviewed to identify impacts, if any, to aspects of the environmental justice population, such as air quality, noise, visual impacts, socioeconomic impacts, public health and safety, or others.

An area within one-half mile (0.5 miles) of the proposed project site is the project study area in this section. The project study area may change depending on the types of effects analyzed; however, using an affected area of 0.5 miles, rather than 1 or 2 miles identifies localized effects of the project. By looking at the localized effects (in this case, within 0.5 miles) rather than the effects that would impact everyone residing in a region equally (such as an area of greater than one mile) identifies disproportionate project-specific effects to minority and low-income populations. Effects that impact areas outside of 0.5 miles, such as visual effects and certain air and water quality effects, would impact the greater region. Looking at such a wide area would not identify any disproportionate effects to minority or low-income populations. By setting the project study area at 0.5 miles for environmental justice, the analysis will focus on the project effects specific to the populations within the vicinity of the project route rather than the region as a whole.

The proposed project or its alternatives would result in an environmental justice effect if *both* of the following are true: (1) there is an unavoidable adverse impact to humans, and (2) the affected area contains a minority or low-income population (as defined in Section 3.16.2). Unavoidable adverse impacts are identified where mitigation measures, which are presented in each section, are not adequate to ensure that effects associated with construction and operation of the proposed project or its alternatives are sufficiently minimized or avoided.

4.16.2 Applicant Measures

No Applicant Measures have been proposed to reduce environmental justice effects.

4.16.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the

project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects would not occur.

4.16.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

4.16.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.16.6 Alternative 4 – Proposed Solar Project

Construction

Direct Effects

As described in Section 3.16, Environmental Justice, the 2000 U.S. Census found the population in the vicinity of the proposed project (located in Census Tract 458 Block Groups 3, 5, and 6) to have an overall minority population of 71.15 percent. The 2010 U.S. Census found the population (now consolidated into a single block group making up the entirety of Census Tract 469) to have a total minority population of 55.41 percent. In both cases, this is above the 50 percent threshold identified by EPA (1998) for identifying a population of concern in an environmental justice analysis. Based on the 2000 U.S. Census data for poverty of the population in the vicinity of the proposed project is well below the 50 percent threshold for poverty with Census Tract 458 Block Groups 3, 5, and 6 having 4.3 percent of the population below the poverty level.

As Census Tract 469 (previously Census Tract 458 Block Groups 3, 5, and 6) is a large, rural census tract covering hundreds of square miles of land, evaluating the environmental justice effects of Alternative 4 examined populations in the immediate vicinity of the DHSP. Alternative 4 would be located within 0.5 miles of 10 Census Blocks, of which only one has a resident population (Block 1412). Additionally, the construction access route off of Interstate 10 (I-10) would be located within 0.5 miles of another 11 populated Census Blocks with a total population of 170 for all 12 Census Blocks. Of these 170 residents, 37 are identified as minority (22 percent) (U.S. Census Bureau 2010). As the minority and low-income population in the vicinity of

the proposed project and construction truck route would be less than 50 percent, it is unlikely that Alternative 4 would disproportionately adversely affect these populations.

Indirect Effects

As construction effects would be short-term and temporary in duration, they would result in no indirect environmental justice effects.

Operation and Maintenance

Direct Effects

As described above for construction effects, the proposed project would be located within 0.5 miles of one populated Census Block and the commute route for operational personnel would pass within 0.5 miles of another 11 populated Census Blocks. As the population in these Census Blocks would be approximately 22 percent minority and as the poverty rate in the area is 4.3 percent, it is unlikely that operation and maintenance of Alternative 4 would disproportionately adversely affect these populations.

Indirect Effects

As the population in the vicinity of Alternative 4 would not be considered low-income or minority, it is unlikely that indirect effects associated with operation and maintenance of Alternative 4 disproportionately adversely affect these populations.

Decommissioning

Direct Effects

Decommissioning activities associated with Alternative 4 would require similar equipment and activities as described for construction. Assuming that the population demographics of the area remain the same for the life of the project, the population in the vicinity of Alternative 4 would not be considered low-income or minority and it is unlikely that decommissioning would disproportionately adversely affect these populations.

Indirect Effects

As described for construction, decommissioning effects would be short-term and temporary in duration and would result in no indirect environmental justice effects.

Mitigation Measures

No mitigation measures are required to reduce effects related to special designations.

Residual Impacts and Unavoidable Adverse Effects

There would be no unavoidable significant environmental justice effects as a result of Alternative 4.

4.16.7 Alternative 5 – Solar Project Excluding WHMA

Construction

Direct Effects

While Alternative 5 would exclude the portion of the site within the Palen-Ford WHMA, the boundaries of the project would otherwise be the same as described for Alternative 4 and construction access routes would remain the same. The populations affected by Alternative 5 would be the same as described for Alternative 4. Consequently, the effects resulting from construction of Alternative 5 would be the same as those described for Alternative 4.

Indirect Effects

As construction effects would be short-term and temporary in duration, they would result in no indirect environmental justice effects.

Operation and Maintenance

Direct Effects

As described above for construction of Alternative 5, operation and maintenance of Alternative 5 would result in the same effects as described for Alternative 4.

Indirect Effects

Indirect effects resulting from operation and maintenance of Alternative 5 would also be the same as described for Alternative 4.

Decommissioning

Direct Effects

Direct effects associated with decommissioning activities for Alternative 5 would be the same as those described for Alternative 4.

Indirect Effects

Indirect effects associated with decommissioning activities for Alternative 5 would be the same as those described for Alternative 4.

Mitigation Measures

No mitigation measures are required to reduce effects related to special designations.

Residual Impacts and Unavoidable Adverse Effects

There would be no unavoidable significant environmental justice effects as a result of Alternative 5.

4.16.8 Alternative 6 – Reduced Footprint Solar Project

Construction

Direct Effects

While Alternative 6 would exclude the separate southwestern parcel of the site, the boundaries of the project would otherwise be the same as described for Alternative 4. The populations affected by Alternative 6 would be the same as described for Alternative 4. Consequently, the effects resulting from construction of Alternative 6 would be the same as those described for Alternative 4.

Indirect Effects

Indirect effects resulting from construction of Alternative 6 would also be the same as described for Alternative 4.

Operation and Maintenance

Direct Effects

As described above for construction of Alternative 6, operation and maintenance of Alternative 6 would result in the same effects as described for Alternative 4.

Indirect Effects

Indirect effects resulting from operation and maintenance of Alternative 6 would also be the same as described for Alternative 4.

Decommissioning

Direct Effects

Direct effects associated with decommissioning activities for Alternative 6 would be the same as those described for Alternative 4.

Indirect Effects

Indirect effects associated with decommissioning activities for Alternative 6 would be the same as those described for Alternative 4.

Mitigation Measures

No mitigation measures are required to reduce effects related to special designations.

Residual Impacts and Unavoidable Adverse Effects

There would be no unavoidable significant environmental justice effects as a result of Alternative 6.

4.16.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Construction

Direct Effects

While Alternative 7 would exclude the separate southwestern parcel of the site, the boundaries of the project would otherwise be the same as described for Alternative 4. The populations affected by Alternative 7 would be the same as described for Alternative 4. Consequently, the effects resulting from construction of Alternative 7 would be the same as those described for Alternative 4.

Indirect Effects

Indirect effects resulting from construction of Alternative 7 would also be the same as described for Alternative 4.

Operation and Maintenance

Direct Effects

As described above for construction of Alternative 7, operation and maintenance of Alternative 7 would result in the same effects as described for Alternative 4.

Indirect Effects

Indirect effects resulting from operation and maintenance of Alternative 7 would also be the same as described for Alternative 4.

Decommissioning

Direct Effects

Direct effects associated with decommissioning activities for Alternative 7 would be the same as those described for Alternative 4.

Indirect Effects

Indirect effects associated with decommissioning activities for Alternative 7 would be the same as those described for Alternative 4.

Mitigation Measures

No mitigation measures are required to reduce effects related to special designations.

Residual Impacts and Unavoidable Adverse Effects

There would be no unavoidable significant environmental justice effects as a result of Alternative 7.

4.16.10 Alternative A – No Gen-Tie

Under Alternative A, the proposed gen-tie would not be approved by the BLM, and no plan amendment would be issued. If this No Action Alternative were selected, the construction and

effects of the gen-tie line would not occur, and BLM would continue to manage the gen-tie route consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no gen-tie approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, effects would not occur.

4.16.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Construction

Direct Effects

Census Tract 469 covers hundreds of square miles of land, so the analysis of environmental justice effects of Alternative B examined populations in the immediate vicinity of the gen-tie route. Alternative B and the access route for construction traffic would be located within 0.5 miles of 11 populated Census Blocks with a total population of 164. Of these 164 residents, 33 are identified as minority (20 percent) (U.S. Census Bureau 2010). As described for Alternative 4, the population in the vicinity of the proposed project site is well below the 50 percent threshold for poverty with Census Tract 458 Block Groups 3, 5, and 6 (the year 2000 designation for Census Tract 469) having only 4.3 percent of the population below the poverty level. As the minority and low-income population in the vicinity of the proposed project site and construction truck route would be less than 50 percent, it is unlikely that Alternative B would disproportionately adversely affect these populations.

Indirect Effects

As construction effects would be short-term and temporary in duration, they would result in no indirect environmental justice effects.

Operation and Maintenance

Direct Effects

As described above for construction effects, the Alternative B gen-tie route would be located within 0.5 miles of 11 populated Census Blocks. As the population in these Census Blocks would be approximately 20 percent minority and as the poverty rate in the area is 4.3 percent, it is unlikely that operation and maintenance of Alternative B would disproportionately adversely affect these populations.

Indirect Effects

As the population in the vicinity of the Alternative B gen-tie route would not be considered low-income or minority, it is unlikely that indirect effects associated with operation and maintenance of Alternative B disproportionately adversely affect these populations.

Decommissioning

Direct Effects

Decommissioning activities associated with Alternative B would require similar equipment and activities as described for construction. Assuming that the population demographics of the area remain the same for the life of the project, the population in the vicinity of Alternative B would not be considered low-income or minority and it is unlikely that decommissioning would disproportionately adversely affect these populations.

Indirect Effects

As described for construction, decommissioning effects would be short-term and temporary in duration and would result in no indirect environmental justice effects.

Mitigation Measures

No mitigation measures are required to reduce effects related to special designations.

Residual Impacts and Unavoidable Adverse Effects

There would be no unavoidable significant environmental justice effects as a result of Alternative B.

4.16.12 Alternative C – Separate Transmission Towers within Same ROW

Construction

Direct Effects

While Alternative C would require construction of a second set of transmission lines in the Desert Sunlight gen-tie corridor, the route of the transmission line would be the same as described for Alternative B and construction access routes would remain the same. The populations affected by Alternative C would be the same as described for Alternative B. Consequently, the effects resulting from construction of Alternative C would be the same as those described for Alternative B.

Indirect Effects

As construction effects would be short-term and temporary in duration, they would result in no indirect environmental justice effects.

Operation and Maintenance

Direct Effects

As described above for construction of Alternative C, operation and maintenance of Alternative C would result in the same effects as described for Alternative B.

Indirect Effects

Indirect effects resulting from operation and maintenance of Alternative C would also be the same as described for Alternative B.

Decommissioning

Direct Effects

Direct effects associated with decommissioning activities for Alternative C would be the same as those described for Alternative B.

Indirect Effects

Indirect effects associated with decommissioning activities for Alternative C would be the same as those described for Alternative B.

Mitigation Measures

No mitigation measures are required to reduce effects related to special designations.

Residual Impacts and Unavoidable Adverse Effects

There would be no unavoidable significant environmental justice effects as a result of Alternative C.

4.16.13 Alternative D – Cross-Valley Alignment

Construction

Direct Effects

Alternative D and the access route for construction traffic would be located within 0.5 miles of 13 populated Census Blocks with a total population of 179. Of these 179 residents, 37 are identified as minority (21 percent) (U.S. Census Bureau 2010). As also described above for Alternative 4, the population in the vicinity of the project site is well below the 50 percent threshold for poverty with Census Tract 458 Block Groups 3, 5, and 6 (the year 2000 designation for Census Tract 469) having only 4.3 percent of the population below the poverty level. As the minority and low-income population in the vicinity of Alternative D and construction truck route would be less than 50 percent, it is unlikely that Alternative D would disproportionately adversely affect these populations.

Indirect Effects

As construction effects would be short-term and temporary in duration, they would result in no indirect environmental justice effects.

Operation and Maintenance

Direct Effects

As described above for construction effects, the Alternative D gen-tie route would be located within 0.5 miles of 13 populated Census Blocks. As the population in these Census Blocks would be approximately 21 percent minority and as the poverty rate in the area is 4.3 percent, it is unlikely that operation and maintenance of Alternative D would disproportionately adversely affect these populations.

Indirect Effects

As the population in the vicinity of the Alternative D gen-tie route would not be considered low-income or minority, it is unlikely that indirect effects associated with operation and maintenance of Alternative D disproportionately adversely affect these populations.

Decommissioning

Direct Effects

Decommissioning activities associated with Alternative D would require similar equipment and activities as described for construction. Assuming that the population demographics of the area remain the same for the life of the project, the population in the vicinity of Alternative D would not be considered low-income or minority and it is unlikely that decommissioning would disproportionately adversely affect these populations.

Indirect Effects

As described for construction, decommissioning effects would be short-term and temporary in duration and would result in no indirect environmental justice effects.

Mitigation Measures

No mitigation measures are required to reduce effects related to special designations.

Residual Impacts and Unavoidable Adverse Effects

There would be no unavoidable significant environmental justice effects as a result of Alternative D.

4.16.14 Alternative E – New Cross-Valley Alignment

Construction

Direct Effects

Alternative E and the access route for construction traffic would be located within 0.5 miles of 14 populated Census Blocks with a total population of 194. Of these 194 residents, 42 are identified as minority (22 percent) (U.S. Census Bureau 2010). As also described above for Alternative 4, the population in the vicinity of the project site is well below the 50 percent threshold for poverty with Census Tract 458 Block Groups 3, 5, and 6 (the year 2000 designation for Census Tract 469) having only 4.3 percent of the population below the poverty level. As the minority and low-income population in the vicinity of Alternative E and construction truck route would be less than 50 percent, it is unlikely that Alternative E would disproportionately adversely affect these populations.

Indirect Effects

As construction effects would be short-term and temporary in duration, they would result in no indirect environmental justice effects.

Operation and Maintenance

Direct Effects

As described above for construction effects, the Alternative E gen-tie route would be located within 0.5 miles of 14 populated Census Blocks. As the population in these Census Blocks would be approximately 22 percent minority and as the poverty rate in the area is 4.3 percent, it is unlikely that operation and maintenance of Alternative E would disproportionately adversely affect these populations.

Indirect Effects

As the population in the vicinity of the Alternative E gen-tie route would not be considered low-income or minority, it is unlikely that indirect effects associated with operation and maintenance of Alternative E disproportionately adversely affect these populations.

Decommissioning

Direct Effects

Decommissioning activities associated with Alternative E would require similar equipment and activities as described for construction. Assuming that the population demographics of the area remain the same for the life of the project, the population in the vicinity of Alternative E would not be considered low-income or minority and it is unlikely that decommissioning would disproportionately adversely affect these populations.

Indirect Effects

As described for construction, decommissioning effects would be short-term and temporary in duration and would result in no indirect environmental justice effects.

Mitigation Measures

No mitigation measures are required to reduce effects related to special designations.

Residual Impacts and Unavoidable Adverse Effects

There would be no unavoidable significant environmental justice effects as a result of Alternative E.

4.16.15 Cumulative Effects

Geographic Scope

As described in Section 4.16.1, the project study area for environmental justice effects would be jurisdictions within 0.5 mile of the proposed project or its alternatives. Similarly, for environmental justice effects associated with the proposed project or its alternatives to combine with those of other projects, the environmental justice effects of the other projects would have to overlap the affected area of the proposed project or its alternatives. Assuming that other projects would also result in environmental justice effects within one-half mile of the project area, to overlap with the proposed project's affected area, these other projects would need to be within one mile of the proposed project or its alternatives. Additionally, as any environmental justice

effects generated by the proposed project or its alternatives would be limited to occurring within the lifespan of the project, cumulative environmental justice effects would also occur only during the lifespan of the project.

Table 4.16-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Environmental Justice	0.5 mile of the proposed project or its alternatives	Significant environmental impacts in the vicinity of the site	• Interstate 10 • Devers-Palo Verde No. 1 Transmission Line • West-wide Section 368 Energy Corridors • BLM Recreational Opportunities • Blythe Energy Project Transmission Line • Chuckwalla Valley Raceway • Desert Sunlight Solar Farm Project • Silverado Power Solar Project • Devers-Palo Verde No. 2 Transmission Line • Desert Southwest Transmission Line • Sol Orchard • SCE Red Bluff Substation

Cumulative Effects Analysis

Existing Cumulative Conditions

This section discusses the past projects that have occurred in the cumulative analysis area described above, in addition to ongoing projects in the area. Table 4.1-1 provides a list of past and present development in the proposed project vicinity. As the cumulative analysis area for environmental justice effects is within 0.5 mile of the project area, past and present development contributing to the cumulative conditions for environmental justice in the cumulative analysis area would include:

- Interstate 10,
- Devers–Palo Verde No. 1 Transmission Line,
- West-wide Section 368 Energy Corridors,
- BLM Recreational Opportunities,
- Blythe Energy Project Transmission Line, and,
- Chuckwalla Valley Raceway.

Reasonably Foreseeable Future Projects

Tables 4.1-2 provides a listing of reasonably foreseeable projects, including other proposed or approved renewable energy projects, various BLM-authorized actions/activities, proposed or approved projects within the County's jurisdiction, and other actions/activities that the Lead Agencies consider to be reasonably foreseeable. Of the cumulative projects listed in Table 4.1-2, the following foreseeable projects would be located in the cumulative effects area for environmental justice:

- Desert Sunlight Solar Farm Project,
- Silverado Power Solar Project
- Devers–Palo Verde No. 2 Transmission Line,
- Desert Southwest Transmission Line,
- Sol Orchard, and
- SCE Red Bluff Substation.

Most of the projects presented in Tables 4.1-1 and 4.1-2 have either undergone independent environmental review pursuant to NEPA and/or CEQA or will do so prior to approval. Even if environmental review has not yet been completed for projects determined to be located within the geographic extent of this cumulative analysis, the potential effects of all projects comprising the existing and reasonably foreseeable cumulative conditions relevant to the proposed DHSP were considered in the cumulative effects analyses in this EIS.

The environmental justice analyses for the Desert Sunlight Solar Farm Project, Devers–Palo Verde No. 2 and Desert Southwest Transmission Lines and the SCE Red Bluff Substation identified no high-minority or low-income populations within one-half mile of the project's transmission ROW in the vicinity of the proposed project or its alternatives. No environmental justice analysis has been performed for the Sol Orchard project at this time. As the minority and low-income populations within one-half mile of the proposed project or its alternatives would be less than 50 percent and lower than the respective overall populations in Riverside County, and no effects to high-minority and low-income populations would occur in the vicinity of the proposed project or its alternatives as a result of the Devers–Palo Verde No. 2 Transmission Line, Desert Southwest Transmission Line, and SCE Red Bluff Substation, effects associated with construction, operation and maintenance, or decommissioning would not result in disproportionate adverse effects on minority or low-income populations and the project/alternatives will not contribute to cumulative effects.

The No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. In addition, Alternative B would not contribute to cumulative environmental justice effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

4.16.16 CEQA Considerations

Appendix G of the State CEQA Guidelines does not provide significance criteria for environmental justice. No significance determination has been made.

4.17 SPECIAL DESIGNATIONS

4.17.1 Methodology for Analysis

This section discusses effects on lands with special designations that would occur with implementation of the proposed project or alternatives. Direct effects may occur during construction from noise, fugitive dust, and lighting that could affect users in designated Areas of Critical Environmental Concern (ACEC) and/or Wilderness Areas (WA). Direct effects would occur if activities would disturb resources for which a special designations area was designated, in this case, the archaeological values in the Alligator Rock ACEC, the desert lily plants or habitat in the Desert Lily Preserve ACEC, desert tortoise in the Chuckwalla Desert Wildlife Management Area (DWMA), or wildlife in the Palen-Ford Wildlife Habitat Management Area (WHMA). Other direct effects would include impacts to the wilderness character of designated WAs, or visual impacts in WAs. A 2010 Joshua Tree National Park visitor survey revealed that three of the most important attributes/resources to visitor groups in the Park as a whole were views without development, clean air, natural quiet/sounds of nature, and dark, starry night skies (Jette et al. 2011). For Joshua Tree National Park, direct effects would include any project-related increase in ambient noise (35 dBA), night-time light pollution, or dust increases within the Park boundaries. Visual effects are discussed in further detail in Section 4.19. For cultural resources, a direct effect is limited to the direct physical disturbance of a historic property. Effects that are immediate but not physical in character, such as visual intrusion, and reasonably foreseeable effects that may occur at some point subsequent to the implementation of the proposed undertaking are indirect effects. Unavoidable adverse impacts are those that would occur after implementation of all incorporated mitigation measures. Unavoidable adverse impacts do not include temporary or permanent impacts which would be mitigated. Cultural Resource effects are discussed in further detail in Section 4.6.

4.17.2 Applicant Measures

No Applicant Measures have been proposed to reduce impacts to special designations.

4.17.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended. As a result, impacts due to the DHSP would not occur.

4.17.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Plan. It is possible that, as a result of the CDCA Plan amendment, that in the future another solar energy generation project could be proposed with impacts similar to the DHSP, however, such impacts are speculative at this time and no impacts from the DHSP would occur.

4.17.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.17.6 Alternative 4 – Proposed Solar Project

Construction

Direct Effects

Under this alternative, the BLM would approve Alternative 4 and would amend the CDCA Plan. Alternative 4 would affect 46 acres in the Palen-Ford WHMA and would be within 1.8 miles of the Joshua Tree Wilderness Area administered by the National Park Service, just over two miles west of the Desert Lily Preserve ACEC, and fewer than six miles from Alligator Rock ACEC.

Effects to vegetation and wildlife in special designation areas, including onsite impacts in the Palen-Ford WHMA and off-site impacts such as dust generation, weed introduction, and wildlife migration, are described in detail in Section 4.3, Biological Resources – Vegetation and Section 4.4, Biological Resources – Wildlife. The 46 acres of the WHMA that are within the DHSP project site are isolated from the remainder of the WHMA and key WHMA resources, including the dunes and playa system to the east, by the intervening DSSF project now under construction (see Figures 3.1-1 and 3.4-1). The functionality of this portion of the WHMA is thus reduced compared to the WHMA as a whole. As a result, the effects of the DHSP on this portion of the WHMA would be diminished but not eliminated. Impacts to vegetation and wildlife in the Palen-Ford WHMA would be addressed with a series of mitigation measures (MM VEG-1 through MM VEG-10). MM VEG-1, VEG-2, and VEG-10 would require monitoring and reporting by designated biologists to ensure impact minimization, including for Desert Dry Wash Woodland Habitat. MM VEG-3 and VEG-4 minimize impacts through worker training and construction best practices. MM VEG-5 helps protect resources by requiring development of a Vegetation Resources Management Plan. MM VEG-6 would require acquisition and management of off-site vegetation and habitat in perpetuity to offset the permanent loss of vegetation and habitat on the project site. This measure, while compensating for impacts to vegetation resources, would not prevent those impacts from occurring. Even with off-site compensation at recommended ratios, there would be a net loss of the native vegetation and related resources. MM VEG-7 and VEG-8 protect sensitive species and habitat, including jurisdictional areas. MM VEG-9 requires a weed management plan to protect resources from non-native and invasive species.

Fugitive dust, traffic and lighting from construction would create temporary visual distractions for users of the Joshua Tree Wilderness Area, Chuckwalla Mountains Wilderness Area, and Desert Lily Preserve ACEC areas. In particular, noise and nighttime lighting could affect the wilderness experience within these areas, making human presence more noticeable. Mitigation Measure VR-1 would require a number of actions, such as minimizing vegetation removal, to reduce construction related impacts to visual resources. Mitigation Measure NOI-2 would control construction noise relative to Joshua Tree National Park boundaries. Mitigation Measure VR-6

would control night lighting within the Park boundaries. Fugitive dust from construction would create a temporary visual distraction for a limited number of users of portions of these areas, although implementation of Mitigation Measure AIR-1 would restrict project-related generation of dust clouds within the Park and minimize dust in other special designation areas. Longer duration construction-related impacts would be addressed by Mitigation Measure VR-2, which requires successful revegetation of temporarily disturbed areas. It is also anticipated that some construction activity would take place at night, which would result in adverse night lighting visual effects. In order to ensure that substantial adverse construction lighting effects do not occur, Mitigation Measure VR-6 would reduce effects associated with night lighting by requiring strict lighting specifications and controls and operating parameters.

Construction of Alternative 4 would not result in any direct off-site impacts to cultural resources, as discussed in Section 4.6. Thus the Alligator Rock ACEC would not be affected by construction of Alternative 4.

Indirect Effects

Construction of Alternative 4 would not result in any indirect impacts to cultural resources located within Alligator Rock ACEC, as discussed in Section 4.6. Thus the Alligator Rock ACEC would not be affected by construction of Alternative 4.

For other special designation areas such as the Chuckwalla DWMA, Palen-Ford WHMA, and Desert Lily Preserve ACEC, indirect construction effects would include the introduction of invasive weeds, herbicide drift, and off-site hydrology impacts. Weeds introduced and/or spread through project-related activities could have indirect impacts not just to the immediate area on and surrounding the site, and if extensive, could impact regional special management areas including Joshua Tree Wilderness Area. This adverse impact would be minimized by Mitigation Measure MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan), which would require the project owner to monitor weed occurrence throughout the project area, and to control substantial weed infestations. Complying with the measures and standard operating procedures in the Herbicide PFEIS, MM PHS-9, as well as other limitations described in the Draft IWMP, would avoid potential adverse effects of herbicides to native vegetation and special-status plants. Implementation of a Surface Water Protection Plan (SWPP; see Section 4.20, Water Resources) and Mitigation Measure MM VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas) during construction would reduce the alteration of water quality, hydrology, and depth to groundwater that would affect habitat in the Chuckwalla DWMA, Palen-Ford WHMA and Desert Lily Preserve ACEC.

The construction of Alternative 4 would also result in indirect visual effects related to an increase in traffic on roadways beyond the immediate project vicinity during construction. Although there would be an increase in vehicle trips on regional roads associated with construction related vehicles, it is not expected that, in the context of existing non-project related traffic, the increased traffic would be noticed by the casual observer, and therefore, the resulting visual effect would not be substantial.

Operation and Maintenance

Direct Effects

A limited number of visitors to a portion of Joshua Tree Wilderness Area would experience adverse effects to their opportunities for solitude. There would also be visual effects from the strong form, line, and color contrast of the solar panels and other structures and from sunlight glint and glare reflecting from these structures. While operation and maintenance would not cause any direct effect on the Joshua Tree Wilderness Area, visitors traversing the southwest areas of the Coxcomb Mountains from which the project is visible would experience permanent direct effects. These effects vary by viewing location, and are discussed in detail in Section 4.19, Visual Resources.

During operation and maintenance (O&M) of the O&M facility and substation, lights would be shielded, would be directed downward, and in the case of the substation would normally be off, but would be motion sensitive to minimize glare in surrounding areas. To accomplish this, effective implementation of Mitigation Measure VR-6, which would reduce adverse visual effects associated with night lighting by requiring strict lighting specifications and controls and operating parameters, would be essential. It is anticipated that the apparent color contrast of the facilities and graded surfaces can be further reduced through effective implementation of Mitigation Measures VR-2 (described above), VR-3, VR-4, and VR-5. Mitigation Measures VR-3 and VR-4, which require the project design to reduce visual contrast with surrounding areas through surface treatments and other actions, and Mitigation Measure VR-5, which further reduces contrast through a screening vegetation buffer, would all serve to minimize visual impacts to special designations throughout the life of the project. Section 4.19 includes a complete discussion of visual impacts and mitigation for the project.

Project operations could result in the generation of dust clouds that could adversely affect the experience of clean air and views of nature within Joshua Tree National Park. Mitigation Measure AIR-3 would restrict generation of project-related dust clouds in the Park by reducing the generation of dust onsite. Mitigation Measure AIR-4 would further reduce emissions from on-site dedicated equipment (i.e., equipment that would remain on site each day) reducing the possibility of emissions being visible from the Park.

Project O&M would not affect plants or wildlife on site after those plants or habitat are removed or damaged during initial construction. Vegetation management for facility operation could cause accidental off-site impacts due to herbicide drift or off-site hydrology impacts. Long-term impacts to habitat can be reduced through implementation of required Mitigation Measures MM VEG-1 through MM VEG-6. These measures would limit the initial disturbance areas and avoid off-site habitat degradation, require vegetation management on-site to minimize adverse off-site impacts, and require off-site compensation for habitat lost or degraded throughout the life of the project. Effects to vegetation and wildlife special designation areas, including onsite impacts in the Palen-Ford WHMA and Chuckwalla DWMA and off-site impacts such as dust generation, weed introduction, and wildlife migration, are described in detail in Section 4.3, Biological Resources – Vegetation and Section 4.4, Biological Resources – Wildlife.

O&M of Alternative 4 would not result in off-site impacts to cultural resources, as discussed in Section 4.6. Thus the Alligator Rock ACEC would not be directly affected by Alternative 4.

Indirect Effects

Construction of Alternative 4 would not result in any indirect impacts to cultural resources located within Alligator Rock ACEC, as discussed in Section 4.6. Thus the Alligator Rock ACEC would not be affected by construction of Alternative 4.

As described in Section 4.3, Biological Resources – Vegetation, the introduction or spread of invasive weeds and, potentially, depletion of groundwater and subsequent effects to groundwater-dependent vegetation could result in indirect impacts both on and off-site in special designation areas such as the Chuckwalla DWMA, Palen-Ford WHMA, Desert Lily Preserve ACEC, and Joshua Tree Wilderness Area. These adverse impacts would be minimized by Mitigation Measures MM VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas), MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan), and MM PHS-9, as well as other limitations described in the Draft IWMP and implementation of a Surface Water Protection Plan (SWPP; see Section 4.20, Water Resources).

Decommissioning

Direct Effects

Decommissioning of Alternative 4 would cause temporary, indirect disturbance to a limited number of users of the Joshua Tree Wilderness Area and Desert Lily Preserve ACEC similar to those described for construction of the project. Facilities removal during decommissioning would be expected to take place within the approved project footprint and would not be expected to remove or degrade vegetation, special-status plants, or state-jurisdictional streambeds beyond the project boundaries, except through the effects of dust or similar direct off-site impacts. These impacts can be reduced through implementation of required Mitigation Measures MM VEG-1 through MM VEG-6, which would apply during decommissioning as they would during construction. If the ultimate re-use of the proposed project site is to return it to natural open space, then the expected recontouring and replanting during decommissioning would have a net benefit to habitat. Effects to vegetation and wildlife in the Chuckwalla DWMA and Palen-Ford WHMA are described in Section 4.3, Biological Resources – Vegetation and Section 4.4, Biological Resources – Wildlife.

Short-term, deconstruction activities would result in visual impacts similar to construction with the visible intrusion of equipment, materials, deconstruction activities, and increased road traffic. Longer-term, the complete removal of the facility would leave a very prominent visual effect over the entire site due to the strong color and line contrast created between graded, disturbed soil areas and undisturbed soil and vegetated areas absent such unnatural lines of demarcation and color contrasts. In addition, revegetation in this desert region is difficult and generally of limited success. Therefore, visual recovery from land disturbance associated with closure and decommissioning activities would likely occur only over a very long period of time. Mitigation Measure VR-2 requires the project owner to achieve site restoration to the extent feasible, pursuant to a Decommissioning Plan approved by the BLM.

Indirect Effects

Construction of Alternative 4 would not result in any indirect impacts to cultural resources located within Alligator Rock ACEC, as discussed in Section 4.6. Thus the Alligator Rock

ACEC would not be affected by construction of Alternative 4. Indirect decommissioning effects on biological resources in special designation areas would be similar to those described for construction. Impacts associated with invasive weed introduction, herbicide drift, and hydrologic impacts would be reduced through the implementation of Mitigation Measures MM VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas), MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan), and MM PHS-9, as well as other limitations described in the Draft IWMP and implementation of a Surface Water Protection Plan (SWPP; see Section 4.20, Water Resources).

Mitigation Measures

The following mitigation measures would ensure that project-related effects to special designations would be reduced:

MM AIR-1 **Fugitive Dust Control Plan.** [full text of measure in Section 4.2]

MM AIR-3 **Control Operational Fugitive Dust.** [full text of measure in Section 4.2]

MM AIR-4 **Control Equipment Emissions**. [full text of measure in Section 4.2]

MM NOI-2 **No Net Increase in Ambient Noise within Joshua Tree National Park.** [full text of measure in Section 4.12]

MM VEG-1 **Assign a Designated Biologist and Biological Monitors.** [full text of measure in Section 4.03]

MM VEG-2 **Conduct Biological Monitoring and Reporting during Project Construction, Operations, and Decommissioning.** [full text of measure in Section 4.03]

MM VEG-3 **Prepare and Implement a Worker Environmental Awareness Program (WEAP).** [full text of measure in Section 4.03]

MM VEG-4 **Minimize Construction-Related Impacts.** [full text of measure in Section 4.03]

MM VEG-5 **Prepare and Implement a Vegetation Resources Management Plan.** [full text of measure in Section 4.03]

MM VEG-6 **Provide Off-Site Compensation for Impacts to Vegetation and Habitat.** [full text of measure in Section 4.03]

MM VEG-8 **Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas.** [full text of measure in Section 4.03]

MM VEG-9 **Prepare and Implement an Integrated Weed Management Plan.** [full text of measure in Section 4.03]

MM VR-1 **Reduce Construction Related Impacts.** [full text of measure in Section 4.19]

MM VR-2 **Revegetation.** [full text of measure in Section 4.19]

MM VR-3 **Project Design to Reduce Visual Contrast.** [full text of measure in Section 4.19]

MM VR-4 **Surface Treatment of Project Structures/Buildings.** [full text of measure in Section 4.19]

MM VR-5 **Screening Vegetation Buffer.** [full text of measure in Section 4.19]

MM VR-6 **Night Light Control.** [full text of measure in Section 4.19]

Residual Impacts and Unavoidable Adverse Effects

While compensating for impacts to vegetation resources, MM VEG-6 would not prevent those habitat impacts from occurring in Chuckwalla DWMA, Palen-Ford WHMA, Desert Lily ACEC, and Joshua Tree Wilderness Area. Even with off-site compensation at recommended ratios, there would be a net loss of the native vegetation and related resources (including habitat and streambed values). However, habitat compensation, which is expected to prevent future losses of habitat in the aggregate by placing a permanent conservation easement and deed restrictions on private lands that could otherwise be converted for urban, agricultural, or energy development, would reduce the regional significance of these losses over time. Residual adverse impacts (i.e., impacts remaining after application of mitigation) to vegetation resources would be (1) the net loss of vegetation and habitat on the project site; (2) the direct effects of dust, and other disturbances to adjacent off-site habitat during construction, operation, and decommissioning of the facility; (3) the net loss of special-status plant occurrences on the project site; and (4) the net loss of state-jurisdictional streambeds and associated habitat on the site and, potentially, off-site, if groundwater pumping causes off-site impacts.

Alligator Rock ACEC would not be affected by construction of Alternative 4.

It is expected that even with effective implementation of Mitigation Measures VR-1 and VR-2, the residual effects associated with land scarring and vegetation clearance from Alternative 4 would remain for many years given the difficulty of successful revegetation in an arid environment. Given the scale of the solar facility and the availability of considerable visual access to the Alternative 4 area, even with effective implementation of Mitigation Measures VR-2, VR-3, VR-4, and VR-5, the residual effects associated with introduced visual contrast from installation of Alternative 4 would remain for the life of the project. Additionally, given the scale of Alternative 4 and the availability of elevated viewing perspectives from surrounding wilderness areas that overlook the northern Chuckwalla Valley, even with effective implementation of Mitigation Measures VR-2, VR-3, VR-4, and VR-5, the residual effect associated with the prominence of Alternative 4 and the introduction of industrial character and structural visual contrast to the field of view from backcountry scenic vistas would still result in substantial adverse visual effects. Although the levels of change caused by Alternative 4 would be allowed under the Interim VRM Class IV management objective, the solar facility would be inconsistent, after mitigation, with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1. These would result in an unavoidable, long-term adverse effect to visual resources.

4.17.7 Alternative 5 – Solar Project Excluding WHMA

Construction

Direct Effects

Under this alternative, the BLM would approve Alternative 5 and would amend the CDCA Plan. While Alternative 5 would exclude the portion of the site within the Palen-Ford WHMA, the boundaries of the project would otherwise be the same as described for Alternative 4. Under Alternative 5, the project site would eliminate all direct impacts to the Palen-Ford WHMA. Alternative 5 would be within two miles of the Joshua Tree Wilderness Area administered by the National Park Service, just over two miles west of the Desert Lily Preserve ACEC, and less than six miles from Alligator Rock ACEC. Consequently, the effects resulting from construction of Alternative 5 would be the same as those described for Alternative 4, although direct effects on the Palen-Ford WHMA would be eliminated.

Indirect Effects

Indirect effects on Alligator Rock associated with Alternative 5 would be the same as described for Alternative 4.

While direct biological resource impacts in the Palen-Ford WHMA would not occur under Alternative 5, due to its location adjacent to the facility site, the indirect effects described above for Alternative 4 would still affect the Palen-Ford WHMA. As described above for Alternative 4, the introduction or spread of invasive weeds and, potentially, depletion of groundwater and subsequent effects to groundwater-dependent vegetation could result in indirect impacts both on and off-site in special designation areas such as the Chuckwalla DWMA, Palen-Ford WHMA, Desert Lily Preserve ACEC, and Joshua Tree Wilderness Area. These adverse impacts would be minimized by Mitigation Measures MM VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas), MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan), and MM PHS-9, as well as other limitations described in the Draft IWMP and implementation of a Surface Water Protection Plan (SWPP; see Section 4.20, Water Resources).

Operation and Maintenance

Direct Effects

As described above for construction of Alternative 5, operation and maintenance of Alternative 5 would result in the same effects as described for Alternative 4, although direct effects on the Palen-Ford WHMA would be eliminated.

Indirect Effects

O&M impacts of Alternative 5 would be the same as described for Alternative 4 with regard to impacts to the Alligator Rock ACEC.

As described above for construction, while Alternative 5 would not result in direct impacts to Palen-Ford WHMA, the indirect effects described above for Alternative 4 would still affect the Palen-Ford WHMA. Consequently, the indirect effects of Alternative 5 on the Chuckwalla DWMA, Palen-Ford WHMA, Desert Lily Preserve ACEC, and Joshua Tree Wilderness Area would be the same as described for Alternative 4.

Decommissioning

Direct Effects

Direct effects associated with decommissioning activities for Alternative 5 would be the same as those described for Alternative 4, although direct effects on the Palen-Ford WHMA would be eliminated.

Indirect Effects

As described for construction, decommissioning effects on Alligator Rock associated with Alternative 5 would be the same as described for Alternative 4.

Indirect decommissioning effects on biological resources in special designation areas would be the same as those described for Alternative 4 even though facility components would not be located within the Palen-Ford WHMA. Consequently, the indirect effects of decommissioning Alternative 5 on the Chuckwalla DWMA, Palen-Ford WHMA, Desert Lily Preserve ACEC, and Joshua Tree Wilderness Area would be the same as described for Alternative 4.

Mitigation Measures

The Mitigation Measures MM VEG-1 through VEG-6, MM VEG-8, MM VEG-9, and MM VR-1 through VR-6 are required to reduce adverse effects on special designations.

Residual Impacts and Unavoidable Adverse Effects

Residual effects of Alternative 5 to areas with special designations would be the same as those described in Section 4.17.6 for the residual effects of Alternative 4, except that the direct effects to the Palen WHMA would be eliminated and impacts to vegetation and habitat would be reduced by 47 acres from 1,208 to 1,161.

4.17.8 Alternative 6 – Reduced Footprint Solar Project

Construction

Direct Effects

Under this alternative, the BLM would approve the Alternative 6 and would amend the CDCA Plan of 1980, as amended. While Alternative 6 would exclude the 155-acre southern parcel of the project and a small portion of the northern parcel that contains a sensitive plant species, the boundaries of the project would otherwise be the same as described for Alternative 4. Under Alternative 6, the project site would affect the Palen WHMA. However, as stated above, the DHSP would affect the mapped WHMA boundary, but it would not affect many of the key the resources the WHMA was created to protect. Alternative 6 would be within two miles of the Joshua Tree Wilderness Area administered by the National Park Service, just over two miles west of the Desert Lily Preserve ACEC, and less than six miles from Alligator Rock ACEC. Alternative 6 would eliminate any impacts to the separate southwestern portion of the site but would not eliminate impacts to special designation areas. Consequently, the direct impacts resulting from construction of Alternative 6 would be functionally the same as those described for Alternative 4.

Indirect Effects

While Alternative 6 would eliminate any impacts to the separate southwestern portion of the site, this would not eliminate any impacts to special designation areas. Consequently, the indirect impacts resulting from construction of Alternative 6 would be the same as those described for Alternative 4.

Operation and Maintenance

Direct Effects

Operation and maintenance of Alternative 6 would result in the same effects as described for Alternative 4.

Indirect Effects

Indirect effects resulting from operation and maintenance of Alternative 6 would also be the same as described for Alternative 4.

Decommissioning

Direct effects associated with decommissioning activities for Alternative 6 would be the same as those described for Alternative 4.

Indirect Effects

Indirect effects associated with decommissioning activities for Alternative 6 would be the same as those described for Alternative 4.

Mitigation Measures

The Mitigation Measures MM VEG-1 through VEG-6, MM VEG-8, MM VEG-9, and MM VR-1 through VR-6 are required to reduce adverse effects on special designations.

Residual Impacts and Unavoidable Adverse Effects

Residual effects of Alternative 6 to areas with special designations would be the same as those described in Section 4.17.6 for the residual effects of Alternative 4, except that impacts to vegetation and habitat would be reduced by 164 acres from 1,208 to 1,044.

4.17.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Construction

Direct Effects

Under this alternative, the BLM would approve the Alternative 7 and would amend the CDCA Plan of 1980, as amended. While Alternative 7 would exclude the 155-acre southern parcel of the project and a small portion of the northern parcel that contains a sensitive plant species, the boundaries of the project would otherwise be the same as described for Alternative 4 and the views of Alternative 7 from land with special designation would be similar. Under Alternative 7, the project site would affect the Palen WHMA. However, as stated above, the DHSP would affect the mapped WHMA boundary, but it would not affect many of the key resources the

WHMA was created to protect (e.g., Mojave fringe-toed lizard, Section 3.4.5). Alternative 7 would be within two miles of the Joshua Tree Wilderness Area administered by the National Park Service, just over two miles west of the Desert Lily Preserve ACEC, and less than six miles from Alligator Rock ACEC. Alternative 7 would eliminate any impacts to the separate southwestern portion of the site but would not eliminate impacts to special designation areas. Consequently, the direct impacts resulting from construction of Alternative 7 would be functionally the same as those described for Alternative 4.

Indirect Effects

While Alternative 7 would eliminate any impacts to the separate southwestern portion of the site, this would not eliminate any impacts to special designation areas. Consequently, the indirect impacts resulting from construction of Alternative 7 would be the same as those described for Alternative 4.

Operation and Maintenance

Direct Effects

Operation and maintenance of Alternative 7 would result in the same effects as described for Alternative 4.

Indirect Effects

Indirect effects resulting from operation and maintenance of Alternative 7 would also be the same as described for Alternative 4.

Decommissioning

Direct effects associated with decommissioning activities for Alternative 7 would be the same as those described for Alternative 4.

Indirect Effects

Indirect effects associated with decommissioning activities for Alternative 7 would be the same as those described for Alternative 4.

Mitigation Measures

The Mitigation Measures MM VEG-1 through VEG-6, MM VEG-8, MM VEG-9, and MM VR-1 through VR-6 are required to reduce adverse effects on special designations.

Residual Impacts and Unavoidable Adverse Effects

Residual effects of Alternative 7 to areas with special designations would be the same as those described in Section 4.17.6 for the residual effects of Alternative 4, except that impacts to vegetation and habitat would be reduced by 164 acres from 1,208 to 1,044.

4.17.10 Alternative A – No Gen-Tie

This No Action Alternative under NEPA defines the scenario that would exist if the proposed gen-tie line were not constructed and no plan amendment was issued. If this No Action Alterna-

tive were selected, the impacts of project construction, operation, decommissioning; as well as cumulative impacts of the project's gen-tie line, would not occur. There would be no project-related disturbance of the ground at the tower locations and pull sites, no disturbance of desert vegetation and habitat, and no installation of transmission equipment.

4.17.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Construction

Direct Effects

Alternative B would be consistent with the CDCA Plan requirements related to the location of 161 kV transmission lines because the Record of Decision for the adjacent Desert Sunlight Project allowed a transmission line above 161 kV in the proposed Alternative B ROW. The proposed gen-tie route under Alternative B would be 3.3 miles east of Joshua Tree National Park, 5.0 miles west and 4.0 miles south of the Desert Lily Preserve ACEC, 0.75 miles north of the Chuckwalla Mountains Wilderness Area, 0.33 miles northeast of the Alligator Rock ACEC, and would parallel the eastern border of the Chuckwalla DWMA for 5.0 miles. Fugitive dust, traffic and lighting from construction would create temporary visual distractions for users of these areas. In particular, noise and nighttime lighting could affect the wilderness experience within these areas, making human presence more noticeable. To address those impacts disturbed soils would have to be controlled properly as required in Mitigation Measure VR-1 in order to reduce dust generation. Longer duration construction-related impacts would be addressed by Mitigation Measure VR-2, which requires successful revegetation of temporarily disturbed areas. It is also anticipated that some construction activity would take place at night, which would result in adverse night lighting visual effects. In order to ensure that adverse construction lighting effects do not occur, Mitigation Measure VR-6 would reduce effects associated with night lighting by requiring strict lighting specifications and controls and operating parameters.

As construction of Alternative B would not result in any direct off-site impacts to cultural resources, the Alligator Rock ACEC would not be affected by construction of Alternative B.

Effects to vegetation and wildlife in the Chuckwalla DWMA and off-site impacts such as dust generation, weed introduction, and wildlife migration, are described in detail in Section 4.3, Biological Resources – Vegetation and Section 4.4, Biological Resources – Wildlife. Impacts to vegetation and wildlife in Chuckwalla DWMA would be addressed with a series of mitigation measures (MM VEG-1 through MM VEG-10). As described above for Alternative 4, some of these measures would mitigate adverse impacts to vegetation resources by preventing the impacts from occurring and others would minimize adverse impacts on the project site and prevent them in adjacent off-site habitats. MM VEG-6 would require acquisition and management of off-site vegetation and habitat in perpetuity to offset the permanent loss of vegetation and habitat on the project site, but would not prevent those impacts from occurring. With off-site compensation at recommended ratios, there would be a net loss of the native vegetation and related resources. Under the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO), development is allowed in one percent of the DWMA. The BLM-administered portion of the DWMA is approximately 465,287 acres in size; therefore, development of Alternative B would represent a negligible percentage of the allowable development in the DWMA.

Indirect Effects

As described in Section 4.6, Cultural Resources, adverse indirect visual, auditory, and atmospheric effects as a result of the construction Alternative B may occur to the North Chuckwalla Petroglyph District (CA-Riv-1383, NRHP listed) and segments of a prehistoric Coco-Maricopa Trail (CA-Riv-053T, NRHP eligible). Therefore, the Alligator Rock ACEC may be adversely effected by construction of Alternative B. These adverse effects would be minimized by Mitigation Measures MM CUL-1 through CUL-9, and measures developed as part of the MOA.The introduction or spread of invasive weeds could result in indirect impacts both on and off-site in special designation areas such as the Chuckwalla DWMA, Palen-Ford WHMA, Desert Lily Preserve ACEC, and Joshua Tree Wilderness Area. These adverse impacts would be minimized by Mitigation Measures MM VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas), MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan), and MM PHS-9.

Construction of Alternative B would also result in an increase in vehicle trips on regional roads associated with construction related vehicles, although it is not expected that, in the context of existing non-project-related traffic, the increased traffic would be noticed by the casual observer; therefore, the resulting visual effect would not be substantial.

Operation and Maintenance

Direct Effects

A limited number of visitors to a portion of Joshua Tree Wilderness, Chuckwalla Mountains Wilderness, and Desert Lily Preserve ACEC would experience adverse effects on their opportunities for solitude. There would be visual effects from the strong form, line, and color contrast of the transmission towers and from sunlight glint and glare reflecting from these structures. While operation and maintenance would not cause any direct effect on the Joshua Tree Wilderness and Chuckwalla Mountains Wilderness, visitors traversing the southwest areas of the Coxcomb Mountains and northern Chuckwalla Mountains would experience permanent direct effects. These effects vary by viewing location, and are discussed in detail in Section 4.19, Visual Resources.

Alternative B O&M would not affect plants or wildlife on site after those plants or habitat is removed or damaged during initial construction. However, vegetation management for facility maintenance could cause accidental off-site impacts, due to herbicide drift or off-site hydrology impacts. Long-term impacts to habitat can be reduced through implementation of required Mitigation Measures MM VEG-1 through MM VEG-6. These measures would limit the initial disturbance areas and avoid off-site habitat degradation; require vegetation management on-site to minimize adverse off-site impacts, and require off-site compensation for habitat lost or degraded throughout the life of the project. Effects to vegetation and wildlife special designation areas, including impacts in the Chuckwalla DWMA and off-site impacts such as dust generation, weed introduction, and wildlife migration, are described in detail in Section 4.3, Biological Resources – Vegetation and Section 4.4, Biological Resources – Wildlife.

As O&M of Alternative B would not result in off-site impacts to cultural resources, the Alligator Rock ACEC would not be directly affected by Alternative B.

Indirect Effects

As described in Section 4.6, Cultural Resources, adverse indirect visual, auditory, and atmospheric effects as a result of the operation and maintenance of Alternative B may occur to the North Chuckwalla Petroglyph District (CA-Riv-1383, NRHP listed) and segments of a prehistoric Coco-Maricopa Trail (CA-Riv-053T, NRHP eligible). Therefore, the Alligator Rock ACEC may be adversely effected by construction of Alternative B. These adverse effects would be minimized by Mitigation Measures MM CUL-1 through CUL-9, and measures developed as part of the MOA.

As described in Section 4.3, Biological Resources – Vegetation, the introduction or spread of invasive weeds could result in indirect impacts both on and off-site in special designation areas such as the Chuckwalla DWMA, Palen-Ford WHMA, Desert Lily Preserve ACEC, and Joshua Tree Wilderness Area. These adverse impacts would be minimized by Mitigation Measures MM VEG-8 (Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas), MM VEG-9 (Prepare and Implement an Integrated Weed Management Plan), and MM PHS-9.

Decommissioning

Direct Effects

Decommissioning of Alternative B would cause temporary, indirect disturbance to a limited number of users of the Joshua Tree Wilderness Area and Desert Lily Preserve ACEC similar to those described for construction of the project. Facilities removal during decommissioning would be expected to take place within the approved project footprint, and would not be expected to remove or degrade vegetation, special-status plants, or state-jurisdictional streambeds beyond the project boundaries, except through the effects of dust or similar direct off-site impacts. These impacts can be reduced through implementation of required Mitigation Measures MM VEG-1 through MM VEG-6, which would apply during decommissioning as they would during construction. If the ultimate re-use of the proposed project site is to return it to natural open space, then the expected recontouring and replanting during decommissioning would have a net benefit to habitat.

Longer-term complete removal of the transmission structures would leave a very prominent visual effect throughout the entire ROW due to the strong color and line contrast created between disturbed soil areas and undisturbed soil and vegetated areas absent such unnatural lines of demarcation and color contrasts. In addition, revegetation in this desert region is difficult and generally of limited success. Therefore, visual recovery from land disturbance associated with closure and decommissioning activities would likely occur only over a very long period of time. However, Mitigation Measure VR-2 requires the project owner to achieve site restoration to the extent feasible, pursuant to a Decommissioning Plan approved by the BLM.

Indirect Effects

As described in Section 4.6, Cultural Resources, adverse indirect visual, auditory, and atmospheric effects as a result of the decommissioning of Alternative B may occur to the North Chuckwalla Petroglyph District (CA-Riv-1383, NRHP listed) and segments of a prehistoric Coco-Maricopa Trail (CA-Riv-053T, NRHP eligible). Therefore, the Alligator Rock ACEC may be adversely effected by construction of Alternative B. These adverse effects would be minimized

by Mitigation Measures MM CUL-1 through CUL-9, and measures developed as part of the MOA.

After Alternative B has been decommissioned, however, any permanent visual effects described for operation and maintenance of the project would be removed and the site would return to its natural undeveloped state.

Indirect decommissioning effects on biological resources in special designation areas would be the same as described for Alternative B construction. Consequently, the indirect effects of decommissioning Alternative B on the Chuckwalla DWMA, Palen-Ford WHMA, Desert Lily Preserve ACEC, and Joshua Tree Wilderness Area would be the same as described for construction of Alternative B.

Mitigation Measures

The Mitigation Measures MM VEG-1 through VEG-6, MM VEG-8, MM VEG-9, and MM VR-1 through VR-6 are required to reduce adverse effects on special designations.

Residual Impacts and Unavoidable Adverse Effects

While compensating for impacts to vegetation resources, MM VEG-6 would not prevent those habitat impacts from occurring in Chuckwalla DWMA, Palen-Ford WHMA, Desert Lily ACEC, and Joshua Tree Wilderness Area. Even with off-site compensation at recommended ratios, there would be a net loss of the native vegetation and related resources (including habitat and streambed values). Residual adverse impacts (i.e., impacts remaining after application of mitigation) to vegetation resources would be (1) the net loss of vegetation and habitat on the project site; (2) the direct effects of dust, and other disturbances to adjacent off-site habitat during construction, operation, and decommissioning of the facility; (3) the net loss of special-status plant occurrences on the project site; and (4) the net loss of state-jurisdictional streambeds and associated habitat on the site and, potentially, off-site, if groundwater pumping causes off-site impacts.

Given the scale of the transmission structures and the availability of considerable visual access to the Alternative B area, even with effective implementation of Mitigation Measures VR-1 through VR-6, the residual effects associated with landscape scarring, introduced visual contrast from installation of facilities, and introduction of industrial character and structural visual contrast would still result in substantial adverse visual effects. Although the levels of change caused by Alternative B would be allowed under the Interim VRM Class IV management objective, the solar facility would be inconsistent, after mitigation, with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1. These would result in an unavoidable, long-term adverse effect to visual resources.

4.17.12 Alternative C – Separate Transmission Towers within Same ROW

Construction

Direct Effects

Under this alternative, the BLM would approve Alternative C and would amend the CDCA Plan of 1980, as amended, to allow the 161-kV line outside an existing corridor. The route of the pro-

posed gen-tie line under Alternative C would be identical to that described above for Alternative B, but would include a set of transmission towers paralleling the approved Desert Sunlight gen-tie line. As this alternative would require a second set of transmission towers in addition to those towers approved for Desert Sunlight, there would be twice as much construction activity in the transmission corridor. Construction would result in identical impacts to those described for Alternative B, although with greater intensity.

Indirect Effects

Indirect construction effects would be identical to those described for Alternative B, although with greater intensity.

Operation and Maintenance

Direct Effects

Operation and maintenance of Alternative C would result in the same types of effects as described for Alternative B, although with a greater intensity.

Indirect Effects

Indirect effects resulting from operation and maintenance of Alternative C would also be the same types as described for Alternative B, although with a greater intensity.

Decommissioning

Direct Effects

Direct effects associated with decommissioning activities for Alternative C would be the same types as those described for Alternative B.

Indirect Effects

Indirect effects associated with decommissioning activities for Alternative C would be the same types as those described for Alternative B.

Mitigation Measures

The Mitigation Measures MM VEG-1 through VEG-6, MM VEG-8, MM VEG-9, MM CUL-1 through CUL-9, and MM VR-1 through MM VR-6 are required to reduce adverse effects on special designations.

Residual Impacts and Unavoidable Adverse Effects

Residual impacts and unavoidable adverse effects would be the same as described for Alternative B.

4.17.13 Alternative D – Cross-Valley Alignment

Construction

Direct Effects

Under this alternative, the BLM would approve Alternative D and would amend the CDCA Plan of 1980, as amended, to allow the 161-kV line outside an existing corridor. The proposed gen-tie route under Alternative D would avoid traversing Chuckwalla DWMA lands near the proposed solar site, although it would run adjacent to the eastern border of the DWMA for 500 feet before turning southeast. At the southern end of Alternative D, the gen-tie would follow the western border of the Palen-Ford WHMA for 2.2 miles before it would cross Interstate 10 (I-10) and traverse the Chuckwalla DWMA for 0.75 miles before entering the proposed Red Bluff Substation. Alternative D would be 3.6 miles east of Joshua Tree National Park, 2.2 miles southwest of the Desert Lily Preserve ACEC, 0.75 miles north of the Chuckwalla Mountains Wilderness Area, and 0.6 miles northeast of the Alligator Rock ACEC. Construction of Alternative D would result in impacts similar to those described for Alternative B, although with somewhat greater intensity because it would require construction of a new transmission line, rather than use of shared towers.

Indirect Effects

Indirect effects as a result of construction are similar to those described for Alternative B, although with somewhat greater intensity.

Operation and Maintenance

Direct Effects

As described above for construction of Alternative D, operation and maintenance of Alternative D would result in the same types of effects as described for Alternative B, although with a somewhat greater intensity.

Indirect Effects

Indirect effects resulting from operation and maintenance of Alternative D would also be the same types as described for Alternative B, although with a somewhat greater intensity.

Decommissioning

Direct Effects

Direct effects associated with decommissioning activities for Alternative D would be the same types as those described for Alternative B.

Indirect Effects

Indirect effects associated with decommissioning activities for Alternative D would be the same types as those described for Alternative B.

Mitigation Measures

The Mitigation Measures MM VEG-1 through VEG-6, MM VEG-8, MM VEG-9, MM CUL-1 through CUL-9, and MM VR-1 through MM VR-6 are required to reduce adverse effects on special designations.

Residual Impacts and Unavoidable Adverse Effects

Residual impacts and unavoidable adverse effects would be the same as described for Alternative B.

4.17.14 Alternative E – New Cross-Valley Alignment

Construction

Direct Effects

Under this alternative, the BLM would approve Alternative E and would amend the CDCA Plan of 1980, as amended, to allow the 161-kV line outside an existing corridor. The proposed gen-tie route under Alternative E would avoid traversing Chuckwalla DWMA lands near the proposed solar site at the northern end of the route. At the southern end of Alternative E, the gen-tie would traverse the Palen-Ford WHMA for 5.75 miles and run along the western border of the WHMA for 1.1 miles before it would cross Interstate 10 (I-10) and traverse the Chuckwalla DWMA for 0.75 miles before entering the proposed Red Bluff Substation. Alternative E would be 2.5 miles southeast of Joshua Tree National Park, 0.4 miles south of the Desert Lily Preserve ACEC, 0.8 miles northeast of the Alligator Rock ACEC, and 0.75 miles north of the Chuckwalla Mountains Wilderness Area. Construction of Alternative E would result in identical impacts to those described for Alternative B, although with somewhat greater intensity because it would require construction of a new transmission line, rather than use of shared towers.

Indirect Effects

Indirect effects as a result of construction are identical to those described for Alternative B, although with greater intensity due to the proximity between Alternative E and the Desert Lily Preserve ACEC.

Operation and Maintenance

Direct Effects

As described above for construction of Alternative E, operation and maintenance of Alternative E would result in the same types of effects as described for Alternative B, although with a somewhat greater intensity.

Indirect Effects

Indirect effects resulting from operation and maintenance of Alternative E would also be the same types as described for Alternative B, although with a somewhat greater intensity.

Decommissioning

Direct Effects

Direct effects associated with decommissioning activities for Alternative E would be the same types as those described for Alternative B.

Indirect Effects

Indirect effects associated with decommissioning activities for Alternative E would be the same types as those described for Alternative B.

Mitigation Measures

The Mitigation Measures MM VEG-1 through VEG-6, MM VEG-8, MM VEG-9, MM CUL-1 through CUL-9, and MM VR-1 through MM VR-6 are required to reduce adverse effects on special designations.

Residual Impacts and Unavoidable Adverse Effects

Residual impacts and unavoidable adverse effects would be the same as described for Alternative B.

4.17.15 Project Related Impacts to National Park Service Managed Lands

The purpose of this subsection is to summarize the direct, indirect and cumulative effects of the project on lands under the authority of the National Park Service; namely, Joshua Tree National Park (JTNP) and Joshua Tree Wilderness. The effects are summarized below for the topics of viewshed, air quality, noise, wildlife, construction workers, and dark skies. Additional discussion associated with National Park Service lands is located in Sections 3.2 (Air Resources), 3.4 (Biological Resources – Wildlife), 3.12 (Noise and Vibration), 3.14 (Recreation), 3.15 (Social and Economic Setting), 3.19 (Visual Resources), 3.20 (Water Resources), 4.2 (Air Resources), 4.4 (Biological Resources – Wildlife), 4.12 (Noise and Vibration), 3.14 (Recreation), 4.15 (Social and Economic Setting), 4.19 (Visual Resources), and 4.20 (Water Resources).

Viewshed

Direct Effects

Construction of the DHSP would cause temporary visual effects due to the presence of equipment, materials, and workforce. Construction would involve the use of cranes, heavy construction equipment, temporary storage and office facilities, and temporary laydown/staging areas. Construction would include site clearing and grading, construction of the actual facilities, and site cleanup and restoration. Grading activities have the potential to generate dust clouds, which can be visually distracting if not controlled properly as required in Mitigation Measure VR-1. Construction activities would be visible from portions of the Joshua Tree Wilderness in Joshua Tree National Park. Throughout the construction period, the industrial character of the activities would constitute adverse visual effects. However, the majority of construction activities and equipment brought onto the project site would be temporary in nature. The vast majority of the area disturbed by construction would eventually be occupied by project facilities, though some areas of disturbed soil surfaces (characterized by high color, line, and texture contrasts) would

still remain and would be visible from the various viewing vantage points due to the difficulty and limited success of revegetation of areas in this desert region. Thus, visual recovery from residual land disturbance would likely occur only over a very long period of time and would require successful restoration as stipulated in Mitigation Measure VR-2. In order to ensure that substantial adverse construction lighting effects do not occur, Mitigation Measure VR-6 is required to reduce effects associated with night lighting by requiring strict lighting specifications and controls and operating parameters.

In addition to the direct visual resource impacts, the construction of the DHSP would also result in one indirect visual effect. Specifically, visual effects related to an increase in traffic on roadways beyond the immediate project vicinity during construction. Although there would be an increase in vehicle trips on regional roads associated with construction related vehicles, it is not expected that, in the context of existing non-project related traffic, the increased traffic would be noticed by the casual observer in Joshua Tree National Park, and therefore, the resulting visual effect would not be substantial.

The operational effects are representative of the visual effects that would be experienced from similar locations, including both lower elevation and elevated viewing opportunities, in the surrounding perimeters of Joshua Tree Wilderness and Joshua Tree National Park. While much of this area of the national park is more remote, less accessible, and less used relative to the more accessible regions of the park to the west and north, the area is still an important destination for its geological, backcountry wilderness, and dark sky values. With increasing distance from the project site, project effects become less discernible. The lower elevation viewpoint at KOP 1 in the Eagle Mountains within the Joshua Tree Wilderness Area illustrates effect of perspective foreshortening, which reduces the apparent size and scale of the project due to a low elevation difference and the narrow angle of view. At the greater viewing distances, the proposed project would result in greater visual effects at the elevated viewpoints (illustrated by KOP 2) as the increased elevation causes the size and shape of the project area to become increasingly apparent, along with its associated form, line, and color visual contrasts.

As illustrated in the viewshed maps presented as Figures 3.19-1A (solar panels) and 3.19-1B (transmission structures), the number of impacted National Park acres within the DHSP viewshed totals 37,508 acres, which represents approximately 4.8 percent of the park's 776,083 total acres. Approximately two-thirds of the impacted acres (25,314 acres) would have views of the solar facility. Furthermore, of the 37,508 impacted park acres, only 7,344 acres, or slightly less than one percent of the park's total acreage, would be within the foreground/middleground viewing distance zone of five miles or less. Another 27,821 acres, or approximately 3.6 percent of the park's total acreage, would be in the background distance zone of 5 to 15 miles. The remaining 2,343 impacted park acres (approximately 0.3 percent of the total park acreage) would be more than 15 miles from the solar facility site. While the total number of impacted park acres is small relative to the whole, all of the park's acreage is important from both a public visitation and sensitivity standpoint and resource protection standpoint.

Of particular concern is the solar facility's potential effect on the Dark Sky resource that Joshua Tree National Park is known for throughout the National Park System. It is estimated that only approximately 10 percent of the population of the United States is able to see the night sky in its natural, unpolluted state. Joshua Tree National Park is noted for initiating partnerships with surrounding communities in an effort to limit light from spilling over park boundaries. To serve

this increasing public interest, Joshua Tree National Park offers a variety of Night Sky programs. In the immediate solar facility region, Dark Sky visitors access the east end of the Pinto Basin at the access gate adjacent to KOP 1. Because any light source in the desert contributes to ambient light pollution and all light sources are adversely cumulative in terms of the effect on human darkness adaptation and the dwindling availability of Dark Sky observation areas, it is essential that substantial steps be taken to ensure that additional night sky light pollution does not occur from implementation of the DHSP. To accomplish this, effective implementation of Mitigation Measure VR-6, which would reduce adverse visual effects associated with night lighting by requiring strict lighting specifications and controls and operating parameters, would be essential.

The view from KOP 1 is to the south from a low ridge at the northeast extent of the Eagle Mountains, at the north end of Chuckwalla Valley. The view captures a majority of the northern Chuckwalla Valley backdropped by the rugged, horizontal form of the Chuckwalla Mountains and Wilderness. As shown in Figure 4.19-1B, the DHSP would result in the introduction of barely discernible built structures that, at an approximately eight-mile viewing distance, would appear as a low, narrow, light-colored, horizontal band along the valley floor (for the solar farm), and faintly visible, vertical structural elements (for the transmission line). Neither the solar farm nor the transmission line structures would be perceived as prominent features in the landscape when viewed from the more distant, lower elevation viewpoints within Joshua Tree Wilderness (and Joshua Tree National Park). View impairment of the valley floor or other background landforms and natural features would be minimal. Although the view from this and similar distant view locations would be static, offering extended view durations, these views also have the potential to be partially obscured by poor atmospheric conditions, such as haze.

At this background viewing distance, the fairly indistinct low horizontal form and line of the solar farm and the vertical forms and lines of the transmission poles would result in a low degree of visual contrast relative to the natural features of the existing landscape. The most notable characteristic of the development is the color contrast resulting from the reflection of light off the solar farm structural support elements (from this viewing angle, the solar panels would be tilted toward the south, away from this viewpoint) and the lighter color of the graded soils. Overall visual contrast would be low. The DHSP features, while visible at this distance, would appear sufficiently small in scale relative to the panoramic landscape context, such that they would be perceived as subordinate features in the landscape. Similarly, the apparent small scale of the project structures at this viewing distance would seem to block from view a minimal extent of the background landscape (valley floor). Thus, view blockage caused by the DHSP would be low. The resulting overall visual change caused by the DHSP would be low, and would not substantially degrade the existing visual character or quality of the landscape as viewed from KOP 1 and other similar more distant, lower elevation vantage points in Joshua Tree Wilderness and Joshua Tree National Park. Although the resulting visual effect would be adverse, it is anticipated that the apparent color contrast of the facilities and graded surfaces can be further reduced through effective implementation of Mitigation Measures VR-2, VR-3, and VR-4.

The view from KOP 2 in the Coxcomb Mountains within Joshua Tree Wilderness is to the southwest from an elevated vantage point overlooking the predominantly natural appearing northern portion of Chuckwalla Valley, backdropped by the rugged, horizontal to angular forms of the Chuckwalla Mountains and Wilderness (to the south and southwest) and Eagle Mountains (to the west). As shown in Figure 4.19-1B, the DHSP would result in the introduction of a large-scale complex of built structures and graded surfaces forming a spatially and visually prominent

series of geometric patterns on the valley floor, that would contrast with the predominantly natural appearance of the northern Chuckwalla Valley landscape and background mountains. The color and reflective characteristics of the panel support structures would contribute to the noticeable contrast with the existing earthtone colors (similar to KOP 1, from this viewing angle, the solar panels would be tilted toward the south, away from this viewpoint). Less distinct would be the faintly visible sequence of vertical transmission structures traversing the valley floor west and south of the solar farm.

The industrial patterns and color of the solar farm, combined with the graded land surfaces and resulting hard lines of the vegetation demarcations would result in strong line contrast with the naturally irregular landform and vegetative lines of the existing landscape. The resulting gray color and slightly reflective metallic surfaces combined with the extensive light-colored graded soil surfaces would contrast moderately to strongly with the darker grey-greens, tans and reddish hues of the foreground to middleground landscape. The resulting overall visual contrast would be moderate-to-high. The spatially prominent location of the solar farm in the central portion of the panoramic views of the Chuckwalla Valley, along with the large scale of the project, which would span a substantial portion of the valley, contribute to the DHSP's overall co-dominance (equally dominant) relative to the flat valley floor and angular mountains. The large areal coverage of the project effectively blocks from view a substantial portion of the valley floor, resulting in a moderate degree of view blockage.

The overall visual change that would result from the equally weighted contributing factors of project-induced visual contrast, project dominance, and view blockage would be moderate, which would cause a substantial effect on the scenic vista available from this and other elevated vantage points within Joshua Tree Wilderness and substantially degrade the existing visual character or quality of the site and its surrounding landscape. However, the resulting overall moderate-to-high level of change would be allowed under the applicable Interim VRM Class IV management objective. Even though the resulting visual effect would be substantial and adverse, it is anticipated that the apparent color contrast of the facilities and graded surfaces can be reduced through effective implementation of Mitigation Measures VR-2, VR-3, VR-4, and VR-5.

Indirect Effects

Indirect visual effects will be the visible increase in traffic on roadways beyond the immediate project vicinity during construction. Although there would be an increase in vehicle trips on regional roads associated with construction related vehicles, it is not expected that, in the context of existing non-project related traffic, the increased traffic would be noticed by the casual observer in Joshua Tree National Park. The resulting visual effect would not be substantial.

Cumulative Effects

The 11 local foreseeable cumulative energy projects would exhibit complex industrial characteristics and structural visual contrast (form, line, color, and texture) similar to the DHSP (though there will be some differences depending on the type of project and viewing location). An example is provided for the cumulative effect of the DHSP and the Desert Sunlight Solar Farm project, which is the closest cumulative project and is located immediately adjacent and to the north of the proposed project. Figure 4.19-2A presents the existing view of the northern Chuckwalla Valley from KOP 2 on the western flank of the Coxcomb Mountains. This elevated viewpoint

provides an elevated perspective of the valley north of I-10. Figure 4.19-2B presents a simulation of the DHSP, which is located approximately 3.5 miles to the southwest. The proposed solar farm, with the solar panel arrays facing (tilted) to the south, away from the viewer at KOP 2, would appear as a spatially prominent and central series of geometric patterns on the basin floor and would contrast with the predominantly natural appearance of the northern Chuckwalla Valley landscape. Figure 4.19-2C presents a cumulative simulation of the DHSP with the Desert Sunlight solar project, at a viewing distance of 2.5 to 3.5 miles to the southwest. Again, the view is toward the back of the solar field with the solar panels facing toward the south, away from the KOP 2 viewing location. As shown in the simulation, the cumulative visual effect of the two projects would be substantially greater with a larger portion of the valley being converted from a natural desert valley landscape to that of an industrial energy complex that appears, at this viewing distance, as a spatially prominent series of geometric patterns that do not replicate the form, line, color, or texture of the existing desert landscape.

Air Quality

Direct Effects

As explained in Section 3.2, Air Resources, the Class I area closest to the project is the Joshua Tree National Park. Visibility is considered an important air quality value to be protected within Joshua Tree National Park. Since the nearest boundary of the Joshua Tree National Park is 1.8 miles from the project site, airborne dust generated at the project site could be visible during construction from within the park, especially because low humidity provides clear vistas and relatively low haze. Construction activities would not require use of any major stationary sources that could permanently affect regional air quality or visibility at the Class I area, and the sources of emissions during construction would occur near the ground level where dust would have a limited ability to notably affect distant vistas.

Precursors to haze would also be intermittently released near ground level by construction equipment exhaust. Because of the diffuse and intermittent nature of construction sources, the emissions would be widely dispersed across the project site, and concentrations near the Joshua Tree National Park would be greatly reduced and much lower than the localized effects near the project site.

Emissions during construction of the project would occur primarily during daytime hours and would be controlled to avoid visible plumes as required by SCAQMD Rule 403. Airborne dust generated by wind erosion would be greatly reduced in concentration over nighttime hours when construction activity ceases for the day. Construction activity would be phased across the solar project site over a 2-year period, limiting the amount of disturbed area that could produce fugitive dust from wind erosion at any one time. In addition, Mitigation Measures MM AIR-1 (Fugitive Dust Control Plan) and MM AIR-2 (Control On-Site Emissions) would be implemented to reduce dust and equipment exhaust emissions to the extent feasible. These emissions control requirements ensure that development of the project would result in only a small and temporary increase in wind erosion potential or visibility reduction compared to natural conditions. Consequently, construction of the project with dust controlled to avoid visible plumes as required by SCAQMD Rule 403 would not produce an adverse effect to vistas or in night sky visibility.

Indirect Effects

There would be no indirect effects associated with the project during construction. The electricity produced by the project would displace electricity generated from other power plants, which would avoid the need for their operation. However, the exact nature and location of any changes in criteria air pollutant emission rates is not known and would not likely occur near the Joshua Tree National Park or Joshua Tree Wilderness Area.

Cumulative Effects

As described above, the nearest federal Class I area, Joshua Tree National Park, is located approximately 1.8 miles away from the project site. It is expected that cumulative PM10 and PM2.5 emissions would result in a temporary unavoidable adverse effects during construction, consequently effects on visibility due to airborne dust would likely be adverse. However, the sources of emissions during construction would occur near the ground level, where dust would have a limited ability to notably affect distant vistas, and emissions would be widely dispersed across the project site. The diffuse and intermittent nature of construction sources ensures that the concentration near the Joshua Tree National Park would be greatly reduced and much lower than the localized effects near the project site. Additionally, all cumulative projects are anticipated to avoid visible plumes as required by SCAQMD Rule 403 and implement additional mitigation measures where needed to control dust emissions. Therefore, the DHSP and other cumulative projects would not result in an adverse cumulative effect on visibility.

Noise

Direct Effects

As indicated in Subsection 4.12.6, noise from construction activity would generally be audible at locations less than a half mile from the proposed project site. Operational activities at the project site would generate minimal noise. During operations, there would be 3 to 8 operations and maintenance workers on the project site, on an as-needed basis. There would be limited amounts of vehicle traffic on the site, but this vehicle activity would be intermittent, and would not be expected to generate off-site adverse noise effects. It is unlikely that noise levels associated with construction or operations of the project would be audible at Joshua Tree National Park, which is located approximately 1.8 miles (9,400 feet) to the northeast of the solar field site. Therefore, project construction and operational activities would not result in adverse noise-related effects on users of Joshua Tree National Park. A detailed discussion of the noise-related effects that would be associated with the project are presented in Section 4.12 (Noise and Vibration).

Indirect Effects

There would be no indirect noise-related effects associated with the project.

Cumulative Effects

Cumulative noise or vibration effects would occur if multiple projects would happen in the same geographic areas at the same time or when sequential projects extend the duration of noise or vibration effects on a given area over a longer period of time. Current ambient noise conditions represent the cumulative effect of noise generation on a local geographic scale. Except for the I-10 vicinity, existing noise levels in the immediate project vicinity are generally low. There are

no known existing ground vibration issues in the project study area. Cumulative noise effects may result in combination with the Desert Sunlight Solar Farm project, located immediately adjacent to and north of the solar field site; the Silverado Power Solar Project, located one mile south of the solar field site; as well as the Desert Center II Solar Project and the Chuckwalla Solar I Project, both of which would be traversed by the gen-tie line under Alternatives D and/or E.

The Silverado Power Solar Project is not anticipated to begin until mid-2014 and therefore, construction activities would not occur at the same time as the DHSP. Alternatively, construction of the Desert Sunlight Solar Farm Project began in September 2011 with full commercial operation expected by the first quarter of 2015 (First Solar 2011). This schedule coincides with the proposed DHSP construction schedule. The timing for approval and construction of the Desert Center II Solar and Chuckwalla Solar I Projects are not known, but could potentially overlap with part of the construction period for the DHSP. However, it would be expected that no adverse cumulative noise effects on Joshua Tree National Park would result from construction or operational activities for the following reasons: 1) the geographic extent of stationary construction-related noise issues would be limited to distances of 2,500 feet, or less; 2) the geographic extent of potential ground vibration effect would be limited to a distance of a few hundred feet from the source of the vibrations; and 3) the relatively long distance from Joshua Tree National Park to the project sites.

Wildlife

Direct Effects

There would be no direct effects to wildlife within the Joshua Tree National Park and Joshua Tree Wilderness as construction and operation of the project would occur outside of Park or Wilderness area boundaries.

Indirect Effects

The development of the project site would result in a permanent conversion of desert habitat to industrial/commercial uses within the NECO planning area, which includes the Joshua Tree National Park and the Joshua Tree Wilderness area. The loss of intermountain and foraging habitat would have indirect effects to the long-term viability of wildlife that are found in or use the surrounding National Parks and Wilderness areas.

For many species such as bighorn sheep, burro deer, and Yuma mountain lion, intermountain movements provide a genetic connection within a larger metapopulation and are the source of colonization of vacant habitat. Intermountain areas of the desert floor that these species traverse between mountain ranges are as important to the long-term viability of populations as are the mountain ranges themselves. Actions that impair the ability of bighorn sheep, burro deer, and mountain lions to move between mountain ranges include fencing along highways or other boundaries, canals, and high densities of human habitation. These will limit the potential for natural colonization and gene exchange, both of which are key to metapopulation viability. Proposed exclusion fencing surrounding the DHSP could affect the movement of wildlife between the Eagle Mountains and Coxcomb Mountains and the Joshua Tree National Park/Bighorn Sheep WHMA.

The introduction of nonnative, invasive weeds could also indirectly affect habitat for wildlife in the Joshua Tree National Park and Joshua Tree Wilderness area, including the state and federally listed desert tortoise, if project activities resulted in the establishment and/or spread of weeds through the region. The effects of weeds on wildlife are detailed in Section 4.4 (Biological Resources – Wildlife), and include displacement of native plants that are important to herbivorous species, increased threat of wildfire, and altered habitat structure and ecological function of wetland, riparian, and desert wash communities.

Golden eagle nesting territories in the Eagle and Coxcomb mountains are within or adjacent to JTNP and adverse effects to these nesting territories would therefore affect JTNP biological resources. Prairie falcon has not been reported in the project area, but would be expected to nest in the surrounding mountains, including the mountains within JTNP, and to forage over the project site at any time of year. Adverse effects to any nesting territories based within JTNP would affect JTNP biological resources. Project construction is not expected to cause substantial direct disturbance (e.g., noise, lighting, visual disturbance) to nest sites in the local nesting territories, due to their distance from the site. However, implementation of Mitigation Measure MM WIL-5 (Golden Eagle Pre-construction and Construction Phase Surveys) requires annual monitoring of golden eagles during nesting season, and requires the project Owner to prepare and implement an adaptive management plan if golden eagles are found nesting in the area at any time during project construction. Additionally, Mitigation Measure MM WIL-6 (Bird and Bat Conservation Strategy) would require the project Owner to prepare and implement an overall strategy to avoid, minimize, or mitigate project impacts to birds and bats, including golden eagles and prairie falcons, in consultation with the USFWS.

Increases in the number of common ravens in the region due to subsidies at the project site could have a long-term effect on the desert tortoise population by reducing juvenile tortoise survivorship (Boarman et al. 2006; Boarman 2003). The population-level consequences of this effect may not be apparent for years because tortoises do not typically reach sexual maturity until 15 to 20 years of age. Due to the solar facility site's proximity to JTNP, the project's predator subsidy effects could extend to desert tortoise and other wildlife populations within the Park.

These indirect effects to wildlife would be reduced by implementation of the Habitat Compensation Plan and Integrated Weed Management Plan required in Applicant Measures BIO 1 and BIO-2 and Mitigation Measures VEG-6 and VEG-7. Mitigation Measures WIL-5 and WIL-6 would reduce impacts to golden eagles and other raptors in JTNP. Additionally, impacts related to an increase in ravens would be reduced or eliminated by the implementation of Mitigation Measure WIL-8.

Cumulative Effects

Land use in the cumulative analysis area has been historically altered by human activities, resulting in conversion of undeveloped land and habitat loss, fragmentation, and degradation. Reasonably foreseeable future projects that could affect biological resources in the cumulative effects area characterize overall development trends in the Chuckwalla Valley as well as in the larger NECO planning area. Ongoing development in the area is dominated by renewable energy development. In addition to large-scale land conversion to industrial uses at a project site, major renewable projects require extensive access roads and new transmission lines to tie into the existing electrical grid system. Other projects in the cumulative study area include non-

renewable energy, transmission lines, wind power, and solar power projects as well as commercial and residential developments, reconstruction projects, a pumped storage project, an auto racetrack, a landfill, and a communication project (see Tables 3.16-2 and 3.16-3). In consideration of the existing and future development in the region, the project would contribute to adverse cumulative effects on wildlife movement between the Park and Wilderness areas and foraging habitat potentially used by wildlife within Joshua Tree National Park and Joshua Tree Wilderness Area.

The incremental direct and indirect effects to wildlife movement and foraging habitat would be reduced with the implementation of the Habitat Compensation Plan and Integrated Weed Management Plan required in Applicant Measures BIO-1 and BIO-2 and Mitigation Measures VEG-6 and VEG-7. These measures would ensure that habitat loss of these areas is adequately compensated for and equivalent habitat would be protected offsite. However, even with the implementation of mitigation, cumulative effects to wildlife would be adverse because of the rapid and large-scale development in the region, particularly related to utility scale renewable energy projects.

Dark Skies

Direct Effects

Of particular concern is the DHSP's potential effect on the Dark Sky resource that Joshua Tree National Park is known for throughout the National Park System. It is estimated that only approximately 10 percent of the population of the United States is able to see the night sky in its natural, unpolluted state. Joshua Tree National Park is noted for initiating partnerships with surrounding communities in an effort to limit light from spilling over park boundaries. To serve this increasing public interest, Joshua Tree National Park offers a variety of Night Sky programs. In the immediate project region, Dark Sky visitors access the east end of the Pinto Basin at the access gate adjacent to KOP 1 in the Eagle Mountains. Because any light source in the desert contributes to ambient light pollution and all light sources are adversely cumulative in terms of the effect on human darkness adaptation and the dwindling availability of Dark Sky observation areas, it is essential that substantial steps be taken to insure that additional night sky light pollution does not occur from implementation of the proposed project. To accomplish this, effective implementation of Mitigation Measure VR-6, which would reduce adverse visual effects associated with night lighting by requiring strict lighting specifications and controls and operating parameters, would be essential.

Indirect Effects

There would be no indirect dark sky-related effects associated with the project.

Cumulative Effects

As described above for Dark Skies Direct Impacts, as all light sources are adversely cumulative in terms of the effect on human darkness adaptation and the availability of Dark Sky observation areas, the 11 local foreseeable cumulative energy projects contributes to ambient light pollution in a manner similar to the DHSP (though there will be some differences depending on the type of project). To insure that additional night sky light pollution does not occur from implementation of the DHSP, implementation of Mitigation Measure VR-6 would be essential.

Water

Direct Effects

As described in Section 3.20, the proposed DHSP site is located within the Colorado River Hydrologic Unit and overlies the Chuckwalla Valley Groundwater Basin (CVGB), which has a surface recharge area of 940 square miles. Joshua Tree National Park is also within the Colorado River Hydrologic Unit, but overlies the Joshua Tree Groundwater Basin, which has a surface recharge area of 53.8 square miles. As described in Section 4.20, construction water requirements of the proposed DHSP are substantially more than operational water requirements; however, the safe yield estimate for the CVGB presented in Table 3.20-2 (Estimated Budget for the Chuckwalla Valley Groundwater Basin) indicates that sufficient water supply is available within the CVGB to meet the project's water requirements. In addition, the Water Supply Assessment (WSA) presented as Appendix E determines that although overdraft conditions should be anticipated to occur in the CVGB over the lifetime of the proposed DHSP, such conditions would be temporary and would recover. Furthermore, mitigation identified in Section 4.20 would require use of an alternative water source for the project or water conservation measures during projected overdraft years in the CVGB (Mitigation Measure WAT-2, Alternative Water Source), thereby avoiding potential adverse effects associated with local groundwater and water supply reliability. As described in Section 4.20, water use and drainage pattern alterations on the project site would be largely site-specific, and would be minimized or avoided through the implementation of mitigation measures. Potential drainage pattern alterations or other surface water effects on the proposed DHSP site would not affect Joshua Tree National Park. A detailed discussion of the water-related effects that would be associated with the project are presented in Section 4.20, Water Resources.

Indirect Effects

Groundwater pumping associated with construction of the DHSP could potentially decrease outflow from the CVGB to hydrologically connected groundwater basin(s), resulting in decreased water availability in the affected basin(s). Groundwater flow direction is generally from the northwest to the southeast, while the Joshua Tree Groundwater Basin is located to the north. Therefore, if the project were to result in this type of indirect effect, it would not be likely to affect the Joshua Tree Groundwater Basin or the overlying Joshua Tree National Park.

Cumulative Effects

An estimated cumulative groundwater budget for the CVGB is presented in Table 4.20-4, and indicates that the CVGB could be affected by overdraft conditions between approximately 2014 and 2025, returning to a positive groundwater balance once water demand associated with cumulative projects is reduced (after 2025). The WSA also includes consideration of the cumulative groundwater budget for the CVGB, and determines that although overdraft conditions could develop in the CVGB during implementation of the DHSP and other reasonably foreseeable projects in the area, such conditions would be temporary, and the DHSP's contribution to such conditions would be minimized through implementation of mitigation measures. Potential effects of the project to surface water resources would be relatively site-specific and would not have the potential to result in cumulative effects on Joshua Tree National Park. The proposed DHSP would not result in cumulative effects that would have the potential to affect surface water or groundwater resources in Joshua Tree National Park.

Recreation

Direct Effects

There would be no direct effects to recreation within the Joshua Tree National Park and Joshua Tree Wilderness Area as construction and operation of the project would occur outside of Park or Wilderness area boundaries.

Indirect Effects

Eliminating recreational use of the DHSP site could result in some minimal increase of recreational use outside the project boundary. In addition, the proposed solar facility would result in a temporary increase in population due to the influx of construction workers, although use of these Joshua Tree National Park or the Joshua Tree Wilderness Area by temporary construction workers is not expected to affect recreational use of these areas by the general public, as construction worker use is expected to be minimal.

Because construction of the project would alter the existing character of the project study area, it may result in a substantial adverse effect on the wilderness experience of dispersed and occasional visitors to the Joshua Tree Wilderness Area, located 1.8 miles from the solar facility boundary at its nearest point. Noise effects would not occur due to the distance between the Joshua Tree Wilderness Area and the project site. These issues are addressed in detail in Sections 4.19 (Visual Resources) and 4.12 (Noise), respectively. While the construction of the project is not expected to reduce visitation to the Wilderness Area, it is expected to substantially diminish the wilderness experience in proximal locations within the Coxcomb Mountains throughout the duration of construction.

Additionally, while the visual effects of operation and the long term presence of the project would be substantially reduced compared with construction, the effects would be ongoing for 30 years, permanently diminishing the wilderness experience to dispersed recreational visitors to the Joshua Tree Wilderness Area.

Cumulative Effects

The project would alter the existing character of the project study area, and it may result in a substantial adverse effect on the wilderness experience of dispersed and occasional visitors to the Joshua Tree Wilderness Area. Three of the energy projects in Table 4.1-2 are as near or nearer to the Joshua Tree Wilderness Area, including the Desert Sunlight Solar Project, Eagle Mountain Wind Project Met Towers, and Eagle Mountain Pumped Storage Project. These projects would result in noise and visual effects on the Joshua Tree Wilderness Area. While the construction of the projects is not expected to reduce visitation to the Wilderness Area, it is expected to substantially diminish the wilderness experience in proximal locations within the Coxcomb Mountains throughout the duration of construction, operation, and decommissioning of the cumulative projects.

Construction Workforce

Direct Effects

There would be no direct effects from project construction workers to Joshua Tree National Park and Joshua Tree Wilderness resources as construction and operation of the project would occur outside of Park or Wilderness area boundaries.

Indirect Effects

The NPS has potential concerns that project construction workers might choose to camp within Joshua Tree National Park either at NPS-designated campsites or informally and commute daily to work at the proposed project site.

Any effects associated with construction workers for the project would be temporary and indirect. The majority of the project construction workforce would be Riverside County residents. The total project construction workforce is expected to average approximately 130 craft workers over the 27-month proposed project construction period, with a peak on-site craft workforce of approximately 315 craft workers.

Research shows that construction workers would commute as much as two hours each direction from their communities rather than relocate (BLM and CEC 2009) and the Applicant has indicated that the labor force for the proposed project would be derived from Riverside County to the extent possible. The socioeconomic information and analysis in Sections 3.15 (Social and Economic Setting) and 4.15 (Social and Economic Setting) determine that there are more than sufficient unemployed Riverside County residents to meet the project's construction workers needs. Consequently, it is expected that minimal population in-migration would occur as a result of the project construction.

Similarly, it also is unlikely that the construction workforce would require housing in excess of the existing supply. Based on the data and analysis in Section 3.15 (Social and Economic Setting) and 4.15 (Social and Economic Setting), any in-migration by the construction workforce could be accommodated by the available hotel rooms and housing vacancies in the nearby cities of Blythe and Indio, which have approximately 35 lodging facilities with an average of 55 rooms per facility.

Most of the Joshua Tree National Park campgrounds are located in the northwest area of the park and are too great a distance for project construction workers to commute from on a daily basis. Only the Cottonwood Campground is readily accessible from I-10. The campground has 62 individual sites available on a first-come first-served basis year round. There are also three group sites that can be reserved. There is a 30-day camping limit each year for park visitors (of which at most 14 nights total may occur from October through May). The Cottonwood Campground would likely be 45 minutes to an hour's drive from the project site. The campground has basic camping amenities, including water and a dump station for RVs, but no shower facilities or utility hook-ups are available. Consequently, the campground would likely have limited attraction as overnight accommodations for project workers.

Informal camping by construction workers could be an issue in the eastern Joshua Tree National Park areas that are closer to the project site and less frequented by other park visitors or park rangers. These areas are remote and do not provide any long-term support facilities or amenities.

Informal camping by construction workers might still occur, but would likely be infrequent and short in duration, resulting in a minor effect on the NPS camping facilities and natural resources.

Cumulative Effects

Depending on their locations, other solar projects near the Joshua Tree National Park may cause effects similar to those of the proposed project. However, the other solar projects are of equal or greater distance from Joshua Tree National Park and therefore would be expected to have an equal or lesser effect (on a per worker basis) on park resources. As discussed in Section 4.15 (Social and Economic Setting), there will be a sufficient number of employable Riverside County residents to meet the projects' cumulative construction workforce needs. It is therefore expected that minimal population in-migration would occur as a result of the construction of the currently foreseen solar construction projects in Riverside County. Furthermore, there are substantial housing and overnight accommodations available in the region to meet any demand for project workers to temporarily relocate closer to their project site. Consequently, there would be a minor cumulative effect on NPS camping facilities and natural resources from construction workers.

Mitigation Measures

The Record of Decision or Right-of-Way Grant stipulations will recognize an Interagency Agreement between the BLM and NPS. This Interagency Agreement will establish roles and responsibilities, and the agencies will work cooperatively with the project owner to develop an Environmental and Construction Monitoring and Compliance Program (ECMCP). The NPS will significantly contribute to the development of detailed criteria in the lighting, dust control, and noise mitigation and monitoring for the project.

MM SD-1 **The NPS reviews and comments on pre-construction plans.** The NPS shall be afforded the opportunity to review and comment on the following pre-construction plans required for the project prior to approval of the plans by the BLM: the Vegetation Resources Management Plan, the Fugitive Dust Control Plan, the Integrated Weed Management Plan, Night Lighting Management Plan, and the Construction Traffic Control Plan**.** Review and comment by the NPS must be within time frames specified by the BLM.

MM SD-2 **Project owner enters into a funding agreement.** The project owner shall enter into a funding agreement or other financial mechanism, as may be specified in the Record of Decision or Right-of-Way Grant, to reimburse the NPS for reasonable costs incurred in the monitoring of the following measures (whether project owner-proposed or BLM-required) to address temporary indirect impacts on the Joshua Tree National Park:

- Fugitive dust: MM AIR-1, and MM VR-1, concerning the development and implementation of a dust control plan that includes the use of dust palliatives to ensure compliance with SCAQMD Rule 403; MM AIR-3, requiring control of fugitive dust on unpaved roads on the DHSP site; and AM-GEO-2, as it relates to the suppression of fugitive dust during construction and operation.
- Noise: MM NOI-1, limiting construction activity to daytime hours near occupied residences.

- Nighttime lighting: MM VR-6, requiring the design and installation of a night lighting management plan concerning temporary and permanent exterior lighting.

MM SD-3 **The project owner develops a Signage and Guidance Plan.** A Signage and Guidance Plan shall be developed for Joshua Tree National Park by the project owner and reviewed and approved by both the NPS and the BLM prior to the start of construction of the project. The intent of this plan is to address the potential indirect effects on NPS land as a result of the influx of workers associated with the mobilization, construction, and demobilization of the project. The plan shall include the following elements:

- Design and installation of directional and informational signage that identify areas of Joshua Tree National Park available for day, overnight, and long-term stays; off-limit areas; and pertinent park rules and regulations;
- Design and installation of strategically placed gates, bollards, or the like, inside the boundary of Joshua Tree National Park, where deemed necessary, for the purpose of vehicular control on NPS parkland located nearest the project boundary;
- Educational instruction for project construction workers on park rules and regulations pertinent to Joshua Tree National Park and Joshua Tree Wilderness Area. This instruction shall be integrated into the Worker Environmental Awareness Program;
- Requirements for the retention and/or removal of any items installed as part of the plan following completion of construction of the project; and,
- Funding mechanism for implementing the plan.

Items installed as part of the plan shall have a nexus to the NPS's need to address the likely impacts associated with above normal numbers of users of Joshua Tree National Park facilities during the mobilization, construction, and demobilization period of the project.

4.17.16 Cumulative Effects

Geographic Scope

Since the project would impact the Joshua Tree, Chuckwalla Mountains and Palen-McCoy Wilderness Areas, the geographic extent of analysis is the area encompassing the northern boundary of the Joshua Tree Wilderness Area south to the southern boundary of the Chuckwalla Mountains Wilderness Area. The eastern and western boundaries would also be determined by the Wilderness Area boundaries. The Alligator Rock ACEC is included in this geographic extent. To a lesser extent, Palen-McCoy Wilderness, since it would be within the viewshed of the project study area is also considered within this analysis.

Table 4.17-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Special Designations	Northern boundary of the Joshua Tree Wilderness Area south to the southern boundary of the Chuckwalla Mountains Wilderness Area. Eastern and western boundaries would also be determined by the Wilderness Area boundaries	Impacts to lands under special designation	• Interstate 10 • Devers-Palo Verde No. 1 Transmission Line • West-wide Section 368 Energy Corridors • BLM Recreational Opportunities • Blythe Energy Project Transmission Line • Chuckwalla Valley Raceway • Desert Sunlight Solar Farm Project • Silverado Power Solar Project • Devers-Palo Verde No. 2 Transmission Line • Desert Southwest Transmission Line • Sol Orchard • SCE Red Bluff Substation

Cumulative Effects Analysis

Existing Cumulative Conditions

The Joshua Tree, Chuckwalla, and Palen-McCoy Wilderness Areas are surrounded by largely undeveloped lands. The Alligator Rock ACEC is also largely undeveloped, though it is nearly adjacent to I-10. Devers–Palo Verde No. 1 transmission line has been built through the Alligator Rock ACEC and the Desert Sunlight Solar Farm is under construction north of the proposed project site.

Past, Present and Reasonably Foreseeable Future Projects

Devers–Palo Verde No. 1 and Blythe Energy Project Transmission Line are existing projects that currently passes through the Alligator Rock ACEC and the Desert Sunlight Solar Facility is currently under construction immediately adjacent to the north of the proposed project site. The Desert Sunlight gen-tie would be constructed along Kaiser Road. The Chuckwalla Valley Raceway is located three miles north of the Alligator Rock ACEC. DPV2 transmission line is a proposed future project that would also pass through the Alligator Rock ACEC. These projects may contribute to the impacts of Alternatives 4, through 7 and C through E to result in cumulative impacts to the ACEC, the Chuckwalla Desert DWMA, and the Palen-Ford WHMA. The temporary impacts from the proposed project or Alternatives 5, 5, and C through E in conjunction with the future Devers–Palo Verde No. 2 and Desert Sunlight projects could cause cumulative impacts to the viewshed of the Chuckwalla Wilderness Areas and the Alligator Rock ACEC by adding a second transmission line adjacent to the existing line. No other known projects have been proposed within the Alligator Rock ACEC, Joshua Tree, Chuckwalla Mountains or Palen-McCoy Wilderness Areas.

Similar to the effects described in Section 4.17.15 above, other projects, such as the Silverado Power Solar Project, in close proximity to the Joshua Tree Wilderness Area and Chuckwalla Mountains Wilderness Area may cause similar impacts compared to the proposed project.

Because construction and project development would not occur under the No Action and No Project Alternatives (Alternatives 1, 2, 3, and A), these alternatives would not contribute to cumulative effects. Alternative B would not contribute to cumulative effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

4.17.17 CEQA Considerations

Appendix G of the State CEQA Guidelines does not provide significance criteria for special designations, except those stated for agriculture and forestry resources (addressed under Section 4.11, Lands and Realty). No significance determination has been made.

4.18 TRANSPORTATION AND PUBLIC ACCESS

This section describes effects on transportation and public access that would be caused by implementation of the proposed project. The following discussion identifies and analyzes environmental impacts, and describes measures to reduce or avoid adverse impacts anticipated from project construction and operation. In addition, existing laws and regulations relevant to transportation and circulation are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the project. An analysis of cumulative effects from other past, present and reasonably foreseeable projects related to transportation and circulation is also included in Section 4.18.15.

4.18.1 Methodology for Analysis

Baseline conditions for the effects analysis presented in this section were established in Section 3.18. To evaluate effects related to transportation and public access within the project study area, a quantitative traffic study was completed for the project by Hernandez, Kroone and Associates (HKA 2011), using methods based on the Highway Capacity Manual. The traffic study follows the outline in the Riverside County Transportation Department "Traffic Impact Analysis Preparation Guide", dated April 2008. The traffic study is included in this document as Appendix H.

Effects to the transportation network were identified based on the predicted interaction among construction, operation, and decommissioning of the project or an alternative and the baseline environmental setting described in Section 3.18. Generally there are two times when the existing traffic volume is highest: between 6:00 AM and 9:00 AM and between 4:00 PM and 6:00 PM on a normal week day. The impacts of the traffic are studied for the peak one hour period during each of those two periods. The analysis presented below estimates the project trips of concern for both the AM and PM Peak Periods.

Traffic operations were quantified through the determination of Level of Service (LOS), which is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an intersection or roadway segment, representing progressively worsening traffic operations. Levels of Service were calculated for the study intersections using methods documented in the Transportation Research Board (TRB) Publication *Highway Capacity Manual, Fourth Edition, 2000* (HCM 2000). A LOS of A means that the intersection has little delay. A LOS of F means the intersection has delays of over a minute for signalized intersections.

In the County of Riverside, Circulation Element Policy C2.1 states the County should maintain a countywide target level of service (LOS) of LOS "C" along all County maintained roads and conventional state highways. As such, if the LOS decreases to below an LOS of C with the addition of the traffic generated by the proposed project (project traffic), it is considered to have an impact and mitigation may be required. Intersections under joint jurisdiction with Caltrans may operate at an LOS of E.

Because no traffic would be generated as a result of any of the two No Project Alternatives (Alternative 1 and Alternative 2 as described in Section 2), the quantitative traffic analysis described in this section is only relevant to the Action Alternatives (Alternatives 4 through 6 as described in Section 2).

Transportation and public access effects were considered for the project's potential to: exceed Level of Service (LOS) standards along roadway segments or intersections; conflict with air travel, restrict or disrupt rail service, restrict or disrupt access to the proposed project site or nearby land uses (including movement of emergency vehicles), restrict or disrupt public transportation, result in substantial damage to area roadways, or conflict with applicable plans.

The County of Riverside General Plan and the County of Riverside Congestion Management Plan were reviewed to evaluate the potential for project traffic to conflict with applicable plans, ordinances, policies, and congestion management programs presented therein.

4.18.2 Applicant Measures

The following Applicant Measures (AMs) have been incorporated as design features of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project. In some cases, mitigation measures further clarify or expand on AM reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures imposed and the following AMs, the mitigation measures take precedence.

AM TR-1 **Construction Traffic Control Plan.** The project Applicant will prepare a Construction Traffic Control Plan in conjunction with Riverside County or Caltrans in accordance with Caltrans Manual on Uniform Traffic Control Devices and the California Joint Utility Traffic Control Manual (2010).

AM TR-2 **Document road conditions.** The project Applicant will document road conditions at the beginning and end of project construction and decommissioning and contribute fair share cost for pavement maintenance and other needed repairs.

AM TR-3 **Share project information with airport owners.** The project Applicant will share project information with the airport owners if a transmission line alternative that runs near the former Desert Center Airport's runway is selected to assure that no special precautions are needed.

AM TR-4 **Coordinate with DoD.** The BLM will coordinate with the Department of Defense R 2508 Complex Sustainability Office, Region IX, based in San Diego, California, and with local regional military installations regarding low-level flight operations relative to the project to assure that no special precautions are needed.

4.18.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed Desert Harvest Solar Project (DHSP) would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, impacts would not occur.

4.18.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site, and BLM would manage the site consistent with the amended land use designation in the CDCA Plan. No impacts from the DHSP would occur.

4.18.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.18.6 Alternative 4 – Proposed Solar Project

The projected future traffic volume in the area provides context against which to measure the impact of project-generated traffic. As discussed in Appendix H several growth measurements were analyzed to determine which one provided the best method to estimate future traffic in the project area and a three percent annual growth rate was determined to be appropriate for use in the traffic analysis.

Project trips represent the volume of traffic that would be added to the road system by implementation of the proposed project. Project trips include employees commuting to and from the proposed project site, construction equipment trips, and deliveries of materials to the proposed project site.

The number of project trips would be the same or similar regardless of which action alternative is chosen. Therefore, the project trips were not estimated separately for each alternative and the traffic analysis was performed using a single dataset.

The only project trips relevant to the quantitative traffic analysis are those that occur during the AM and PM peak traffic hours. Because traffic volume would likely be greatest during these hours, analyzing these periods provides a conservative assessment of overall traffic impacts. The AM peak traffic hour occurs during the period from 6:00 AM to 9:00 AM and the PM peak traffic hour occurs during the period from 4:00 PM to 6:00 PM (HKA 2011). Traffic impacts are studied for the peak one hour period during each of those two periods.

Construction

Construction would occur over a period of 24 months. The project is expected to require a maximum on-site workforce of 250 individuals at any one time, with an anticipated average workforce of 100 individuals. Because the typical work day would consist of one shift between the hours of 7:00 AM and 7:00 PM, not all of the construction worker trips would be expected to occur during the Peak Periods identified above. Truck trips for delivering equipment and materials would be brought to the site before the maximum on-site workforce. On average, about 20 large vehicles would deliver equipment and materials per day, with most of these truck trips

moving outside of peak periods (HKA 2011). Table 4.18-1 presents the number of daily and peak hour worker commute trips and truck trips expected to be generated by the maximum work-force during project construction.

Table 4.18-1. Construction Trip Generation

Component	Daily Trips (PCEs*)	AM Peak Period		PM Peak Period	
		IN	OUT	IN	OUT
Solar Project	426	125	—	—	125
Guards	20	—	5	—	—
Personnel Subtotal	446	125	5	0	125
Deliveries and Equipment	Varies	18	15	—	—
Total	—	143	20	—	125

* Project truck trips were converted to passenger car equivalents (PCEs) by using a factor of 3 (i.e. the total number of trucks expected to access the site during the AM peak hour is 6 in and 5 out).
Source: Appendix H (HKA 2011)

Direct Effects

Measures of Effectiveness for Performance of Circulation System (LOS)

Construction of the proposed project would generate additional traffic on regional and local roadways. Construction worker commute trips and equipment and materials deliveries would increase existing traffic volumes in the project area.

As described in Section 4.18.1 Riverside County Circulation Element Policy C2.1 states that the County must maintain a target LOS "C" along County maintained roads and conventional state highways. As such, impacts to roadways would occur when the addition of project traffic causes roadway operations to degrade from an acceptable level (LOS C or better) to an unacceptable level (LOS D or worse). Intersections under joint jurisdiction with Caltrans may operate at an LOS of E.

As shown below in Table 4.18-2, the addition of project construction related traffic to the regional roadway network is expected to increase the delay at all intersections by less than one second and the LOS of these intersections would remain within the County target of LOS "C" or better. Drivers along these roadways would not be expected to experience substantial noticeable delays with the addition of project-related construction traffic.

Table 4.18-2. LOS Summary for Project Construction

Intersection	Control	Without Project		With Project	
		Delay (sec)	LOS	Delay (sec)	LOS
AM Peak Period					
SR-177 / I-10 EB	EB off ramp stops	9.1	A	10.0	B
SR-177 / I-10 WB	WB off ramp stops	9.1	A	9.9	A
SR-177 / Kaiser Road	SB Kaiser Road stops	8.5	A	8.6	A
PM Peak Period					
SR-177 / I-10 EB	EB off ramp stops	9.3	A	9.8	A
SR-177 / I-10 WB	WB off ramp stops	9.7	A	10.1	B
SR-177 / Kaiser Road	SB Kaiser Road stops	8.8	A	9.6	A

EB – eastbound
WB – westbound
Source: Appendix H (HKA 2011)

As discussed in Section 4.20, MM WAT-2 could require the project owner to transport water needed for construction of Alternative 4 by truck depending on overdraft conditions in the Chuckwalla Valley Groundwater Basin. If required, it is estimated that this would result in 50 truck trips per day in addition to the trucks presented in Table 4.18-1. The potential for these water truck trips to result in adverse effects to the LOS of existing roadways and intersections would be reduced through implementation of mitigation measure TRAN-1 presented under the "Mitigation Measures" subheading and summarized below.

- MM TRAN-1 (Alternative Water Source) would reduce impacts to LOS by requiring water trucks to arrive and depart the site outside of the AM and PM peak hours.

Air Traffic Obstruction and Safety

According to Federal Aviation Regulations, Part 77, Section 77.23 (a)(2), objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport (whichever is higher), that are within three nautical miles (3.45 linear miles) of an airport could be considered an obstruction to aviation activities.

The proposed project would overlap a low-level military flight path. The project owner would coordinate with the Department of Defense R-2508 Complex Sustainability Office, Region IX, based in San Diego, California, as well as with local regional military installations to ensure that no impacts or conflicts occur during construction (AM-TRANS-4). The proposed project would be sufficiently distant (5 miles) from the former Desert Center Airport that no effects would occur. Construction of the proposed project would not substantially increase traffic at regional airports as most trips to the site would take place in cars or trucks. The proposed project would be located within 4 miles of the Eagle Mountain landing strip. The landing strip is located at an elevation that is at least 200 feet higher than the proposed project site and the tallest structures at the proposed project site would be the 34.5-kV collector poles, estimated at 52 feet above finished grade. Construction of Alternative 4 would not result in placement of objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport (whichever is higher), that are within three nautical miles (3.45 linear miles).

Roadway Damage and Hazards

Project-generated traffic, especially heavy truck traffic, would accelerate the rate of deterioration of public roads traveled. The contribution of the proposed project to road deterioration would be negligible on I-10 because project-generated traffic would be a small portion of total traffic. However, effects on local roads could be more pronounced. Effects would be reduced with implementation of MM TRAN-2, which would require the project owner to restore roads to pre-construction conditions.

Most of the land surrounding the proposed project site is unimproved with the exception of Kaiser Road. The entrance to the proposed project site would be graded to dimensions to accommodate construction trucks; therefore, no adverse effects are expected to occur as a result of a street design feature. An emergency gate would be located in the southeast corner, with access to Beekley Road (north of Rice Road, west of Carr Road). Because this road would only be used during emergencies, no adverse effects are expected to occur due to use of this road.

Emergency Access

With the addition of project construction traffic, all intersections and roadways segments analyzed would operate at LOS A. At LOS A, traffic can move freely. Therefore, construction traffic would not result in adverse effects to access to the proposed project site (including movement of emergency vehicles) or nearby land uses. An emergency gate would be located in the southeast corner, with access to Beekley Road (north of Rice Road, west of Carr Road).

Conflict with Applicable Congestion Management Program or other Plans and Policies

The Regional Transportation Plan (RTP) is a multi-modal, long-range planning document prepared by the Southern California Association of Governments (SCAG), in coordination with federal, state, and other regional, subregional, and local agencies in southern California. The RTP includes programs and policies for congestion management, transit, bicycles and pedestrians, roadways, freight, and finances. The Riverside County Congestion Management Program (CMP) was established to more directly link land use, transportation, and air quality and to prompt reasonable growth management programs that would more effectively utilize new and existing transportation funds, alleviate traffic congestion and related impacts, and improve air quality. The proposed project involves construction of a renewable energy generation facility that would not involve construction of new transportation facilities or substantial alteration of existing transportation facilities (other than installation of an access driveway on Kaiser Road). There are no pedestrian or public transit facilities in the vicinity of the proposed project. As discussed above, project construction traffic would not reduce the LOS of area facilities below LOS C. Therefore the project would not conflict with the applicable RTA or CMP.

Indirect Effects

There are no indirect effects related to transportation and public access for construction.

Operation and Maintenance

Operational Trips

Operation of the project would require a staff of up to 8 permanent employees. No replacement/rotations of plant personnel are projected during this period. If the need for such a rotation arises, necessary arrangements would be coordinated with the owner on a case-by-case basis. The operational trip generation numbers conservatively assume up to 10 O&M staff per shift and up to two shifts per day. Operation of the project would also require up to 5 security personnel (conservatively estimated) and 5 deliveries per day. Given an O&M staff of 8 per shift, it is anticipated 1 round trip by each will be made to the proposed project site. Table 4.18-3 shows an anticipated schedule of the trips to and from the site each day during project operation.

Table 4.18-3. Operational Trip Generation

Component	Daily Round Trips	AM Peak Period		PM Peak Period	
		IN	OUT	IN	OUT
O&M Staff	20	—	10	10	—
Guards	10	—	5	5	—
Deliveries and Equipment	5	1	1	1	1
Total	35	1	16	16	1

Source: Appendix H (HKA 2011)

Direct Effects

Measures of Effectiveness for Performance of Circulation System (LOS)

Traffic related to operation of the project would generate a total of 17 trips during each the AM and PM peak hours. An increase of 17 trips during the peak hour would not impact area intersections or roadways. The existing intersections and roadways have sufficient capacity to absorb these 17 trips without a decrease in LOS or operation (as verified by the analysis of construction effects which shows the existing system is able to absorb over 125 AM Peak hour trips and PM peak hour trips). There is no concern for impacts to the study roads or intersection and no need for mitigation due to the operation and maintenance project trips for the project.

Air Traffic Obstruction and Safety

Because operation and maintenance of the project would not result in placement of objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport (whichever is higher) within three nautical miles (3.45 linear miles) of an airport, direct effects of operating and maintaining Alternative 4 on air traffic would be identical to as those described for construction.

Roadway Damage and Hazards

Because operation and maintenance of Alternative 4 would result in substantially fewer vehicle trips than construction, direct effects of operating and maintaining Alternative 4 on roadway damage would be substantially less than those described for construction.

Emergency Access

Because operation and maintenance of Alternative 4 would result in the addition of substantially fewer vehicle trips to area roadways, direct effects of operating and maintaining Alternative 4 on emergency access would be substantially less than those described for construction.

Conflict with Applicable Congestion Management Program or other Plans and Policies

As described for construction of Alternative 4, there are no direct effects related to conflicts with applicable plans and policies that would occur as a result of operating and maintaining Alternative 4.

Indirect Effects

There are no indirect effects related to transportation and public access for construction.

Decommissioning

The proposed methods of decommissioning of the solar facility are summarized in Chapter 2. The expected operational lifetime of the project is 30 years; however, the actual life of the project could be longer or shorter. When permanent closure is appropriate, a decommissioning plan will be prepared and submitted to the BLM for review and approval. Decommissioning of the project would occur in compliance with the decommissioning plan. Decommissioning of the project may range from temporary “mothballing” to complete removal of equipment and restoration of the land to BLM approved specifications (enXco 2011). For the purposes of this analysis

of effects on transportation and public access, it is assumed that decommissioning would require a similar number of vehicle trips as construction of Alternative 4.

Direct Effects

Measures of Effectiveness for Performance of Circulation System (LOS)

The number of vehicle trips associated with decommissioning would be similar to those required for construction. As shown below in Table 4.18-2, the addition of project construction related traffic to the regional roadway network is expected to increase the delay at all intersections by less than one second but would not reduce the existing LOS to an unacceptable level. Drivers along these roadways would not be expected to experience substantial noticeable delays with the addition of project-related construction traffic. Therefore direct effects of Alternative 4 on the performance of the circulation system would be similar to those described for construction.

While truck traffic associated with decommissioning would be expected to be similar to that described for construction, it is difficult to determine the impacts of project decommissioning due to uncertainties of traffic conditions in the future. If the existing traffic is worse at the time of decommissioning than the current existing conditions, mitigation measures similar to MM TRAN-1 would be implemented during decommissioning, as part of the decommission plan to be developed and approved by the BLM.

Air Traffic Obstruction and Safety

Decommissioning of Alternative 4 would result in removal of all onsite structures. Therefore, direct effects of this alternative would have no effect on air traffic.

Roadway Damage and Hazards

Because the number of vehicle trips associated with decommissioning of the project would be similar to those associated with construction, direct effects of decommissioning of Alternative 4 on roadway damage and hazards would be identical to those described for construction of Alternative 4.

Emergency Access

Because the number of vehicle trips associated with decommissioning of the project would be similar to those associated with construction of Alternative 4, direct effects of decommissioning of Alternative 4 on emergency access would be identical to those described for construction of Alternative 4.

Conflict with Applicable Congestion Management Program or other Plans and Policies

Because the number of vehicle trips associated with decommissioning of the project would be similar to those associated with construction of Alternative 4, as described for construction of Alternative 4, there would be no direct effects related to conflicts with applicable plans and policies that would occur as a result of decommissioning of Alternative 4.

Indirect Effects

There are no indirect effects related to transportation and public access for construction.

Mitigation Measures

The following mitigation measure is required to reduce effects related to transportation and public access.

MM TRAN-1 Limit Water Truck Deliveries. All water truck deliveries are prohibited from arriving or departing the project during the AM Peak Period (6:00 AM to 9:00 AM) and PM Peak Period (4:00 PM to 6:00 PM).

MM TRAN-2 Restore Local Roads. The project owner shall document road conditions of Kaiser Road and any other local construction access roads prior to and at the end of project construction and decommissioning, and restore the roads to pre-construction (and pre-decommissioning) conditions in consultation with Riverside County and BLM. Should the project owner wish to engage in a cost sharing arrangement with other local project developers for restoring local roads, the burden of proof shall rest with the project owner to demonstrate that the roads will be restored to pre-construction (and pre-decommissioning) conditions, and any cost sharing arrangement requires Riverside County and BLM approval.

Residual Impacts and Unavoidable Adverse Effects

No unavoidable adverse effects to transportation and public access would result from implementation of Alternative 4.

4.18.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would be constructed within the same project boundaries as Alternative 5, except that it would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA), as shown on Figure 2-9, in Appendix A.

Construction

Although Alternative 5 covers a slightly smaller area than Alternative 4, the estimated number of construction-related truck trips would be the same for Alternative 5 as for Alternative 4. The direct and indirect effects of Alternative 5's construction will be the same as those described for Alternative 4.

Operation and Maintenance

Operation and maintenance of Alternative 5 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

Decommissioning

Decommissioning of Alternative 5 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

Mitigation Measures

The same mitigation measures would apply to Alternative 5 as apply to Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

No unavoidable adverse effects to transportation and public access would result from implementation of Alternative 5.

4.18.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would be constructed within the same project boundaries as Alternative 4 except that it would exclude the 155-acre southern parcel of the project and a small portion of the northern parcel that contains a sensitive plant species, as shown on Figure 2-10, in Appendix A.

Construction

Although Alternative 6 covers a slightly smaller area than Alternative 4, the estimated number of construction-related truck trips would be the nearly identical for Alternative 6 as for Alternative 4. The direct and indirect effects of Alternative 6's construction will be the same as those described for Alternative 4.

Operation and Maintenance

Operation and maintenance of Alternative 6 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

Decommissioning

Operation and maintenance of Alternative 6 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

Mitigation Measures

The same mitigation measures would apply to Alternative 6 as apply to Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

No unavoidable adverse effects to transportation and public access would result from implementation of Alternative 6.

4.18.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet.

Construction

Although Alternative 7 covers a slightly smaller area than Alternative 4 and requires single-axis tracking panels that would have a total height of 15 feet, the estimated number of construction-related truck trips would be the nearly identical for Alternative 7 as for Alternative 4. The direct and indirect effects of Alternative 7 construction will be the same as those described for Alternative 4.

Operation and Maintenance

Operation and maintenance of Alternative 7 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

Decommissioning

Operation and maintenance of Alternative 7 would be nearly identical to that of Alternative 4, and effects would be consistent with those listed for Alternative 4.

Mitigation Measures

The same mitigation measures would apply to Alternative 7 as apply to Alternative 4.

Residual Impacts and Unavoidable Adverse Effects

No unavoidable adverse effects to transportation and public access would result from implementation of Alternative 7.

4.18.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed and no plan amendment would be issued. If this No Action Alternative were selected, the construction and effects of the gen-tie line would not occur, and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no gen-tie line approved for the site under this alternative, it is expected that proposed tower locations and pull sites would continue to remain in their existing conditions, with no new structures constructed or operated on and no ground disturbance. As a result, effects caused to transportation and public access related to the gen-tie would not occur.

4.18.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Alternative B would share transmission infrastructure with the approved Desert Sunlight Solar Farm (DSSF) project; however, the baseline for environmental effects is the existing condition of the site in September 2011. At this time, construction of the DSSF transmission infrastructure had not yet commenced, so analysis of Alternative B must include all construction effects of this shared infrastructure.

Construction

Construction of Alternative B within the 12.1-mile by 160-foot-wide transmission corridor, plus additional fan-shaped areas at corners, would result in the permanent disturbance of 92 acres along the route, as described in Section 2.8 (Alternative B).

Over a 12-month construction period, the gen-tie workforce will average 30 employees and no more than 65 employees at any one point. A total of approximately 240 material deliveries are expected during the construction period for the gen-tie line.

Direct Effects

Measures of Effectiveness for Performance of Circulation System (LOS)

Construction of Alternative B would generate additional traffic on regional and local roadways. Construction worker commute trips and equipment and materials deliveries would increase existing traffic volumes in the project area.

As described in Section 4.18.1 Riverside County Circulation Element Policy C2.1 states that the County must maintain a target LOS "C" along County maintained roads and conventional state highways. As such, impacts to roadways would occur when the addition of project traffic causes roadway operations to degrade from an acceptable level (LOS C or better) to an unacceptable level (LOS D or worse). Intersections under joint jurisdiction with Caltrans may operate at an LOS of E.

The addition of gen-tie line construction related traffic to the regional roadway network is expected to increase the delay at all intersections; however, even if all construction workers commuted during peak hours, this increase of an average of 30 trips would be less than the increase of Alternative 4 which resulted in a delay of less than one second. The existing LOS of these intersections is not expected to change and the construction effects of Alternative B would be a temporary effect. Drivers along these roadways would not be expected to experience substantial noticeable delays with the addition of Alternative B construction traffic.

Air Traffic Obstruction and Safety

Alternative B would overlap a low-level military flight path. The project owner would coordinate with the Department of Defense R-2508 Complex Sustainability Office, Region IX, based in San Diego, California, as well as with local regional military installations to ensure that no effects or conflicts occur during construction (AM-TRANS-4). Alternative B would be 2.25 miles from the former Desert Center Airport and within 4 miles of the Eagle Mountain landing strip. Because the landing strip is located at an elevation that is at least 200 feet higher than Alternative B and the tallest structures along the gen-tie line would be the 135-foot transmission poles, construction of Alternative B would not result in placement of objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport (whichever is higher), that are within three nautical miles (3.45 linear miles). Construction of the Alternative B would not substantially increase traffic at regional airports as most trips to the site would take place in cars or trucks.

Roadway Damage and Hazards

Project-generated traffic, especially heavy truck traffic, would accelerate the rate of deterioration of public roads traveled. The contribution of Alternative B to road deterioration would be negligible on I-10 because construction-generated traffic would be a small portion of total traffic. However, effects on local roads could be more pronounced. Effects would be reduced with implementation of MM TRAN-2, which requires restoration of roads.

Emergency Access

With the addition of project construction traffic, all intersections and roadways segments analyzed would operate at LOS A. At LOS A, traffic can move freely. Therefore, construction

traffic would not result in adverse effects to access to the proposed project site (including movement of emergency vehicles) or nearby land uses.

Conflict with Applicable Congestion Management Program or other Plans and Policies

The Regional Transportation Plan is described in Section 4.18.6 for Alternative 4. Alternative B involves construction of a gen-tie line that would not involve construction of new transportation facilities or substantial alteration of existing transportation facilities (other than installation of access spur roads to the transmission towers along Kaiser Road). There are no pedestrian or public transit facilities in the vicinity of Alternative B. As discussed above, project construction traffic would not reduce the LOS of area facilities below LOS E. Therefore Alternative B would not conflict with the applicable RTA or CMP.

Indirect Effects

There are no indirect effects related to transportation and public access for construction.

Operation and Maintenance

The DHSP operations and maintenance personnel would perform periodic maintenance of Alternative B, and no additional personnel would be required. Therefore no increase of trips would occur above those expected for Alternative B There is no concern for effects to the study roads or intersection, roadway damage and hazards, or emergency access and no need for mitigation due to the operation and maintenance project trips for the project.

Direct Effects

Air Traffic Obstruction and Safety

Because operation and maintenance of Alternative B would not result in placement of objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport (whichever is higher) within three nautical miles (3.45 linear miles) of an airport, direct effects of operating and maintaining Alternative B on air traffic would be identical to as those described for construction.

Conflict with Applicable Congestion Management Program or other Plans and Policies

As described for construction of Alternative B, there are no direct effects related to conflicts with applicable plans and policies that would occur as a result of operating and maintaining Alternative B.

Indirect Effects

There are no indirect effects related to transportation and public access for construction.

Decommissioning

For the purposes of this analysis of effects on transportation and public access, it is assumed that decommissioning would require a similar number of vehicle trips as construction of Alternative B.

Direct Effects

Measures of Effectiveness for Performance of Circulation System (LOS)

The number of vehicle trips associated with decommissioning would be similar to those required for construction. The addition of project construction related traffic to the regional roadway network is expected to increase the delay at all intersections by less than one second but would not change the existing LOS of these intersections. As such drivers along these roadways would not be expected to experience substantial noticeable delays with the addition of project-related construction traffic. Therefore direct effects of Alternative B on the performance of the circulation system would be similar to those described for construction.

Air Traffic Obstruction and Safety

Decommissioning of Alternative B would result in removal of all transmission structures. Therefore, direct effects of this alternative would have no effect on air traffic.

Roadway Damage and Hazards

Because the number of vehicle trips associated with decommissioning of the project would be similar to those associated with construction, direct effects of decommissioning of Alternative B on roadway damage and hazards would be identical to those described for construction of Alternative B.

Emergency Access

Because the number of vehicle trips associated with decommissioning of the project would be similar to those associated with construction of Alternative B, direct effects of decommissioning of Alternative B on emergency access would be identical to those described for construction of Alternative B.

Conflict with Applicable Congestion Management Program or other Plans and Policies

Because the number of vehicle trips associated with decommissioning of the project would be similar to those associated with construction of Alternative B, as described for construction of Alternative B, there would be no direct effects related to conflicts with applicable plans and policies that would occur as a result of decommissioning of Alternative B.

Indirect Effects

There are no indirect effects related to transportation and public access for construction.

Mitigation Measures

Construction, operation and maintenance, and decommissioning of Alternative B would not result in substantial adverse direct or indirect effects to transportation and public access such that mitigation measures are required. No mitigation measures are proposed.

Residual Impacts and Unavoidable Adverse Effects

No unavoidable adverse effects to transportation and public access would result from implementation of Alternative B.

4.18.12 Alternative C – Separate Transmission Towers within Same ROW

Alternative C would parallel the approved DSSF gen-tie line, and would be located on separate towers within the same, or a slightly larger, ROW, see Figure 2-14, Appendix A. Construction of Alternative C within the 12.1-mile by 160-foot-wide transmission corridor, plus additional fan-shaped areas at corners, would result in the permanent disturbance of 92 acres along the route, as described in Section 2.9 (Alternative C).

Construction

Alternative C would occur adjacent to Alternative B. The estimated number of construction-related truck trips would be the same for Alternative C as for Alternative B. The direct and indirect effects of Alternative C's construction will be the same as those described for Alternative B.

Operation and Maintenance

Operation and maintenance of Alternative C would be nearly identical to that of Alternative B, and effects would be consistent with those listed for Alternative B.

Decommissioning

Decommissioning of Alternative C would be nearly identical to that of Alternative B, and effects would be consistent with those listed for Alternative B.

Mitigation Measures

Construction, operation and maintenance, and decommissioning of Alternative C would not result in substantial adverse direct or indirect effects to transportation and public access such that mitigation measures are required. No mitigation measures are proposed.

Residual Impacts and Unavoidable Adverse Effects

No unavoidable adverse effects to transportation and public access would result from implementation of Alternative C.

4.18.13 Alternative D – Cross-Valley Alignment

Alternative D would parallel the approved Desert Sunlight gen-tie line for approximately 2,400 feet along the east side of Kaiser Road until intersecting with the existing SCE transmission line ROW. Alternative D would turn southeast and run parallel to the existing transmission ROW for 7.2 miles, then turn south for 0.6 miles, continuing due west for 0.5 miles until it turns south across I-10 and continues to the Red Bluff Substation, see Figure 2-15, in Appendix A.

Construction

The estimated number of construction-related truck trips would be the same for Alternative D as for Alternative B. The direct and indirect effects of Alternative D's construction will be the same as those described for Alternative B for effects to performance of the circulation system, roadway damage and hazards, emergency access, and conflicts with applicable congestion management programs or other plans and policies.

Air Traffic Obstruction and Safety

Alternative D would be located 2,800 feet south of the former Desert Center Airport, which is now a private special-use airport with no FAA-approved instrument approach procedure. Alternative D would be located at an elevation estimated to be 40 feet higher than the airport, 590 feet and 550 feet, respectively. The largest structure along the gen-tie line would be the proposed 135-foot tall transmission towers. Construction of the Alternative D would not result in placement of objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport (whichever is higher), that are within three nautical miles (3.45 linear miles). However, at this location, the towers would be located below the 20:1 obstacle clearance surface that would typically be associated with a public use airport operated under visual flight rules (VFR). Form 7460-1, Notice of Proposed Construction or Alteration, must be filed with the FAA if an object to be constructed has the potential to affect navigable airspace according to these standards. It is not mandatory that a Form 7460-1 be filed with the FAA because the airport is privately-owned and privately-used and there is no FAA-approved instrument approach procedure. However, it would be prudent to coordinate with the FAA. Coordination with the airport owners (AM-TR-3) would occur prior to construction. No substantially adverse effects would occur.

Operation and Maintenance

Operation and maintenance of Alternative D would be nearly identical to that of Alternative B, and effects would be consistent with those listed for Alternative B, except for air traffic obstruction and safety. Direct effects of operating and maintaining Alternative D on air traffic would be identical to as those described for construction.

Decommissioning

Decommissioning of Alternative D would be nearly identical to that of Alternative B, and effects would be consistent with those listed for Alternative B.

Mitigation Measures

Construction, operation and maintenance, and decommissioning of Alternative D would not result in substantial adverse direct or indirect effects to transportation and public access such that mitigation measures are required. No mitigation measures are proposed.

Residual Impacts and Unavoidable Adverse Effects

No unavoidable adverse effects to transportation and public access would result from implementation of Alternative D.

4.18.14 Alternative E – New Cross-Valley Alignment

Alternative E would exit the south end of the solar facility site at a point 0.8 miles from its southeast corner. It would travel southeast for 1.8 miles across properties owned in fee by MWD then turn east for 0.5 miles, then run southeast for 3.6 miles, then due south for 3.8 miles then turn west for 1.75 miles to reach the Red Bluff Substation, see Figure 2-16, in Appendix A.

Construction

The estimated number of construction-related truck trips would be the same for Alternative D as for Alternative B. The direct and indirect effects of Alternative D's construction will be the same as those described for Alternative B for effects to performance of the circulation system, roadway damage and hazards, emergency access, and conflicts with applicable congestion management programs or other plans and policies.

Air Traffic Obstruction and Safety

Alternative E would be located one mile north of the former Desert Center Airport at the same estimated elevation. The largest structure along the gen-tie line would be the proposed 135-foot tall transmission towers. Construction of the Alternative E would not result in placement of objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport, that are within three nautical miles (3.45 linear miles) nor would the towers be located below the 20:1 obstacle clearance surface that would typically be associated with a public use airport operated under visual flight rules (VFR). No substantially adverse effects would occur.

Operation and Maintenance

Operation and maintenance of Alternative E would be nearly identical to that of Alternative B, and effects would be consistent with those listed for Alternative B, except for air traffic obstruction and safety. Direct effects of operating and maintaining Alternative E on air traffic would be identical to as those described for construction.

Decommissioning

Decommissioning of Alternative E would be nearly identical to that of Alternative B, and effects would be consistent with those listed for Alternative B.

Mitigation Measures

Construction, operation and maintenance, and decommissioning of Alternative E would not result in substantial adverse direct or indirect effects to transportation and public access such that mitigation measures are required. No mitigation measures are proposed.

Residual Impacts and Unavoidable Adverse Effects

No unavoidable adverse effects to transportation and public access would result from implementation of Alternative E.

4.18.15 Cumulative Effects

Cumulative effects on transportation and public access resulting from the project or an alternative would have the potential to occur if vehicle traffic from other projects traveled the same roadways at the same time as traffic from the DHSP. Construction-related traffic effects would mostly result from increased construction (and decommissioning) traffic on the regional roadways. Operation and maintenance of the proposed project or its alternatives would have minimal transportation or traffic associated with it other than for maintenance activities and solar facility operation. Therefore, the only opportunity for cumulatively significant transportation and/or

traffic effects to occur would be during the two-year construction phase of the project and the decommissioning phase.

Geographic Scope

The geographic extent of this cumulative analysis includes the regional roadway network considered for analysis of project effects. Tables 4.1-1 and 4.1-2 respectively provide a comprehensive listing of all existing and foreseeable projects that could contribute to a cumulative effect on the environment. Traffic from existing projects is included in the baseline and therefore is already included in the analysis of project effects discussed above. Therefore, the cumulative analysis focuses on the potential for effects of the proposed project or its alternatives to combine with impacts of reasonably foreseeable projects. Of the reasonably foreseeable projects identified in Table 4.1-2, effects of the Desert Sunlight Solar Farm Project have the most potential to combine with effects of the DHSP due to the proximity of that project to the proposed project and because the construction schedules for each project are expected to overlap. The other projects listed in Table 4.1-2 that would combine with the DHSP are the Eagle Mountain Pumped Storage Project, Palen Solar Energy Project, SCE Red Bluff Substation, Desert Center 50, Sol Orchard, Eagle Mountain Landfill Project, and Silverado Solar Power Project. Table 4.18-4 presents these projects.

Table 4.18-4. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Transportation and Public Access	The regional roadway network considered for analysis of project-impacts	Performance of Circulation System (LOS)	• Eagle Mountain Pumped Storage Project • Palen Solar Energy Project • Desert Sunlight Project • SCE Red Bluff Substation • Desert Center 50 • Sol Orchard • Eagle Mountain Landfill Project • Silverado Power I, II, III

The temporal extent of this cumulative analysis would be the two-year construction phase of the project and the decommissioning phase.

Cumulative Effects Analysis

Alternatives 1, 2, 3, and A. Alternatives 1, 2, 3, and A would not have any project-level effects and would not contribute to cumulative adverse effects.

Alternative 4.

Measures of Effectiveness for Performance of Circulation System (LOS)

A cumulative LOS analysis was prepared specifically for the proposed project plus the Desert Sunlight Solar Farm Project because of the proximity of the Desert Sunlight Solar Farm Project to the proposed project and because the construction schedules for each project are expected to overlap. The purpose of the cumulative LOS analysis was to identify the effect that concurrent construction of the two projects would have on the study area roadway segments and intersections. Table 4.18-5 summarizes the trip generation for the Desert Sunlight Solar Farm Project.

These trips would be expected to combine with the trips generated by the proposed project (summarized in Table 4.18-1).

Table 4.18-5. Desert Sunlight Solar Farm Construction Trip Generation

Component	Daily Trips	AM Peak Period		PM Peak Period	
		IN	OUT	IN	OUT
Solar Farm & Transmission Line	204	88	2	—	10
Red Bluff Substation	108	46	—	—	8
Visitors	10	—	—	—	—
Personnel Subtotal	322	134	2	—	18
Deliveries, Concrete, Equipment	—	18	15	—	—
Total	322	152	17	—	18

Source: Appendix H (HKA 2011)

As shown below in Table 4.18-6, the addition of traffic from the proposed project and the Desert Sunlight Solar Farm Project to the regional roadway network is expected to increase the delay at all intersections by one second or less. The LOS of two intersections would be reduced from LOS A to LOS B during the AM Peak Period and the LOS of one intersection during the PM Peak Period would be reduced from LOS A to LOS B. Riverside County and Caltrans consider LOS B to be acceptable. Consequently, drivers along these roadways would not be expected to experience substantial noticeable delays with the addition of project-related construction traffic. Therefore, the proposed project or an alternative would not contribute to adverse cumulative effects associated with effectiveness for performance of circulation system.

Table 4.18-6. LOS Summary for Cumulative Conditions

Intersection	Control	Without Project*		With Project	
		Delay (sec)	LOS	Delay (sec)	LOS
AM Peak Period					
SR-177 / I-10 EB	EB off ramp stops	9.4	A	10.6	B
SR-177 / I-10 WB	WB off ramp stops	9.4	A	10.5	B
SR-177 / Kaiser Road	SB Kaiser Road stops	8.6	A	8.7	A
PM Peak Period					
SR-177 / I-10 EB	EB off ramp stops	9.3	A	9.9	A
SR-177 / I-10 WB	WB off ramp stops	9.7	A	10.1	B
SR-177 / Kaiser Road	SB Kaiser Road stops	8.8	A	9.6	A

* The background traffic counted at the site was increased by 3% to project the background traffic expected during the construction period. To conservatively account for the construction traffic generated by the Desert Sunlight Solar Farm Project, half of its projected traffic for the solar farm construction, the transmission line and Red Bluff Substation construction trips are included. The highest months of construction traffic for the Desert Sunlight Solar Farm Project were anticipated to be the 5th and 6th month of construction prior to the beginning of the DHSP construction.

Source: Appendix H (HKA 2011)

Air Traffic Obstruction and Safety

There are many low-level military flight paths in the area. The implementation of foreseeable projects could present additional obstacles for low-level flight, limiting the military's ability to conduct these operations and resulting in a cumulatively considerable impact to air travel. However, there are few airports in the area and few if any projects would be in proximity to them. Similar to the proposed project, conflicts between cumulative projects and air traffic would be

expected to be resolved between the affected airport and the proponent of the specific project; therefore, no cumulative effects would result.

Roadway Damage and Hazards

Impacts of the proposed project related to roadway deterioration would be reduced with implementation of MM TRAN-2, which requires restoration of local roads. Cumulative projects would be expected to be required to implement similar measures. Consequently, any damage to roadways would be expected to be repaired by project proponents (or funds contributed by project proponents) and adverse cumulative effects would not occur.

Emergency Access

With the addition of the proposed project and cumulative traffic, all intersections and roadways segments analyzed would operate at LOS B. At LOS A, traffic can move freely. Therefore, construction traffic would not impact access to the proposed project site (including movement of emergency vehicles) or nearby land uses.

Conflict with Applicable Congestion Management Program or other Plans and Policies

As discussed above, the combined effects of traffic from the proposed project and cumulative projects would not reduce the LOS of area facilities below LOS D or LOS E. Therefore adverse cumulative effects related to conflicts with the applicable RTA or CMP would not occur.

Alternatives 5, 6, and 7. In light of their similarities, the transportation and public access cumulative effects for Alternatives 5 through 7 would be essentially the same as described for Alternative 4 and cumulative effects would not be substantially adverse.

Alternative B. Alternative B would not contribute to cumulative traffic effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie. No cumulative effects would occur due to air traffic obstruction and safety, emergency access, or conflicts with applicable congestion management programs.

Alternatives C, D, and E. The transportation and public access cumulative effects for Alternatives C, D, and E would be similar to Alternative B. However, Alternatives C, D, and E would require construction of new gen-tie line towers and therefore would require use of additional construction traffic trips. Even with the addition of up to 30 traffic trips, cumulative impacts would not be substantially adverse because the LOS of the roads would not reduce the LOS of area facilities below LOS D or LOS E. No cumulative effects would occur related to emergency access or conflicts with applicable congestion management programs. Effects of Alternative C, D, and E to roadway damage would be reduced with implementation of MM TRAN-2 as with Alternative 4. Effects of Alternative C to air traffic obstruction would be reduced with implementation of AM TR-3.

4.18.16 CEQA Considerations

This section is included in this EIS for future use by CEQA Lead and Responsible agencies, and is not required under NEPA.

CEQA Significance Criteria

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. These criteria are used to determine whether the project or alternative would result in significant impacts to transportation and public access under CEQA. The project and alternatives would result in a significant impact to transportation and public access if one of the following criteria is met.

TR-1 Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

TR-2 Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

TR-3 Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

TR-4 Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

TR-5 Result in inadequate emergency access.

TR-6 Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

For the proposed project and alternatives, the following CEQA criteria were determined to be inapplicable or to result in no impact under all alternatives. The determination regarding these significance criteria is discussed below, and these criteria are not discussed further in this section.

- Substantially increase hazards due to a design feature:

  The proposed project and alternatives would not include a design feature or incompatible uses that would result in an increase in hazards; therefore, there would be no impact.

CEQA Significance Determination

Alternatives 1, 2, 3, and A would not have any impacts related to transportation and public access. Under these alternatives the DHSP would not be approved and would not be constructed. Traffic would remain in its existing state.

Alternative 4. The proposed solar layout would develop 1,208 acres of BLM-administered multiple use land for solar energy production and would result in approximately 570 daily trips with 114 trips into the solar facility and 20 trips out of the solar facility during the AM Peak Period and 95 trips out of the solar facility during the PM Peak Period. The addition of Alternative 4 construction related traffic to the regional roadway network is expected to increase the

delay at all intersections by less than one second but would not change the existing LOS of these intersections, which are operating at LOS A, as noted in Section 4.18.3. Riverside County and Caltrans consider LOS A to be acceptable. Therefore, Alternative 4 would not impact plan, ordinance or policies establishing measures of effectiveness for the performance of the circulation system (TR-1) nor conflict with an applicable congestion management program (TR-2).

Alternative 4 would be located over 2 miles from the nearest airport and landing strip as noted in Section 4.18.3. Therefore, Alternative 4 would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks (TR-4).

Alternative 4 would not result in inadequate emergency access because the regional roadways would continue to operate at an acceptable LOS A (TR-5).

Alternative 4 would not conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities (TR-6), see Section 4.18.3.

Alternative 5. Impacts from Alternative 5 would be the same as those under Alternative 4.

Alternative 6. Impacts from Alternative 6 would be the same as those under Alternative 4.

Alternative 7. Impacts from Alternative 7 would be the same as those under Alternative 4.

Alternative B. Alternative B would develop a gen-tie line and would result in approximately 30 daily construction trips. The addition of Alternative B construction related traffic to the regional roadway network is expected to increase the delay at all intersections by less than one second but would not change the existing LOS of these intersections, which are operating at LOS A, as noted in Section 4.18.11. Riverside County and Caltrans consider LOS A to be acceptable. Therefore, Alternative B would not impact plan, ordinance or policies establishing measures of effectiveness for the performance of the circulation system (TR-1) nor conflict with an applicable congestion management program (TR-2).

Alternative B would be located over 2 miles from the nearest airport and landing strip as noted in Section 4.18.11. Therefore, Alternative B would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks (TR-4).

Alternative B would not result in inadequate emergency access because the regional roadways would continue to operate at an acceptable LOS A (TR-5).

Alternative B would not conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities (TR-6), see Section 4.18.11.

Alternative C. Impacts for Significance Criteria TR-1 through TR-6 would be essentially the same for Alternative C as for Alternative B as discussed in Section 4.18.12.

Alternative D. Impacts for Significance Criteria TR-1, TR-2, TR-5, and TR-6 would be essentially the same for Alternative D as for Alternative B as discussed in Section 4.18.13.

Alternative D would be located 2,800 feet south of the former Desert Center Airport. The largest structure along the gen-tie line would be the proposed 135-foot tall transmission towers. As noted in Section 4.18.13, Form 7460-1, Notice of Proposed Construction or Alteration, must be filed with the FAA if an object to be constructed has the potential to affect navigable airspace according to FAA standards. It is not mandatory that a Form 7460-1 be filed because the airport is privately-owned and privately-used and there is no FAA-approved instrument approach procedure. Coordination with the airport owners (AM-TR-3) would occur prior to construction would ensure that no changes in air traffic patterns occurred and all impacts to navigable airspace were less than significant (TR-3).

Alternative E. Impacts for Significance Criteria TR-1 through TR-6 would be essentially the same for Alternative E as for Alternative B as discussed in Section 4.18.15.

4.19 VISUAL RESOURCES

This section discusses effects on visual resources that would occur with implementation of the Desert Harvest Solar Project (DHSP), including cumulative effects, and mitigation measures to avoid or reduce visual effects. Overall, the DHSP would result in the long-term visual alteration of landscapes and viewsheds from BLM-administered lands, other public lands, and private lands.

An assessment was made of the landscape changes that would be associated with the construction and operation of the proposed project and alternatives as seen from various vantage points including vista viewpoints. A scenic vista is a distant view of a broad area that is visually or aesthetically pleasing, typically because of the mostly undeveloped landscape being viewed. Although there are no federal, state, or locally designated scenic vistas, general scenic vistas across the landscape are still available. Most scenic vistas involving the DHSP are from viewpoints along Interstate (I-) 10, along State Route (SR-) 177 in Desert Center and Lake Tamarisk, and from surrounding ridgelines in Joshua Tree Wilderness, though these locations are more difficult to access.

4.19.1 Methodology for Analysis

An *adverse visual effect* typically occurs within public view when: (1) an action perceptibly changes existing features of the physical environment so that they no longer appear to be characteristic of the subject locality or region; (2) an action introduces new features to the physical environment that are perceptibly uncharacteristic of the region and/or locale; or (3) visually prominent natural or cultural features of the landscape become less visible (e.g., partially or totally blocked from view) or are removed. Changes that seem uncharacteristic are those that appear out of place, discordant, or distracting. The degree of the visual effect depends upon how noticeable the adverse change may be. The noticeability of a visual effect is a function of project features, context, and viewing conditions (angle of view, distance, primary viewing directions, and duration of view).

The factors considered in determining adverse effects on visual resources included: (1) scenic quality of the DHSP site and vicinity; (2) available visual access and visibility, frequency, and duration that the landscape is viewed; (3) viewing conditions (distance, angle of observation, relative size or scale, spatial relationships, motion, light conditions, seasonable variability and use, atmospheric conditions, and recovery time) and the degree to which the DHSP components would dominate the view of the observer; (4) resulting contrast (form, line, color, and texture) of the project facilities or activities with existing landscape characteristics; (5) the extent to which DHSP features or activities would block views of higher value landscape features; and (6) the level of public interest in the existing landscape characteristics and concern over potential changes. Digital techniques were used to produce simulations of the DHSP as it would appear with implementation as seen from several Key Observation Points (KOPs). The proposed project and alternatives simulations assisted in the on-site assessment of the contrast of the action alternatives with existing landscape elements.

Effects on visual resources within the project study area (northern Chuckwalla Valley and surrounding ridgelines) could result from various activities including: facility construction, establishment of construction staging areas and access roads, and project operation or presence of the built facilities. The impact methodology and results of the impact assessment are discussed

below. The impact methodology is described in greater detail in Appendix G-1 and the results of the impact assessment are summarized and presented as a series of foldout tables in Appendix G-2. Appendix G-4 presents the Visual Resource Management (VRM) Contrast Rating forms for each KOP.

BLM VRM Contrast Analysis Methodology

Under the BLM's Visual Contrast Rating (VCR) System, the proposed project and alternatives are analyzed for their effects on visual resources using an assessment of the visual contrast within the landscape created by components of the DHSP. Impacts to the inventoried visual resource values and conformance with Interim VRM Class Objectives are evaluated through a contrast rating process described below, and in greater detail in **Appendix G-1**. The degree to which the proposed project and alternatives adversely affect the visual quality of a landscape is directly related to the amount of visual contrast between the action alternative and the existing landscape character.

Visual Contrast Ratings were conducted using the BLM's VRM System manuals (BLM 1986b, 1984). The Visual Contrast Rating Forms are provided in Appendix G-4. Under the VRM System, the degree to which a project or activity affects the visual quality of a landscape depends on the visual contrast created between the project components and the major features, or predominant qualities, in the existing landscape. Visual contrast evaluates a project's consistency with the visual elements of form, line color, and texture already established in the viewshed. In a sense, visual contrast indirectly indicates a particular landscape's ability to absorb a project's components and location without resulting in an uncharacteristic appearance. Other elements that are considered in evaluating visual contrast include the degree of natural screening by vegetation and landforms; placement of structures relative to existing vegetation, landforms and other structures; observer's angle of view relative to the Proposed Action; distance from the point of observation; viewing duration/spatial relationships; atmospheric conditions; season of use; lighting conditions; and relative size or scale of a project. Once the degree of anticipated contrast is determined (ranging from none to strong), a conclusion on the overall level of change is made (ranging from very low to high) and compared to the applicable VRM Class objective for a determination of conformance with the Interim VRM Class objectives.

For DHSP, the assigned Interim VRM Class is **VRM Class IV**. The management objective for VRM Class IV is as follows.

> ***VRM Class IV****. The objective is to provide for management activities that require major modification of the landscape character. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repetition of the basic landscape elements.*

According to BLM policy (BLM Manual H-8410-1; BLM 1986a) Interim Visual Resource Management (VRM) classes are established where a project is proposed and there are no approved VRM objectives in the applicable land use plan, as is the case for the DHSP project site which is governed by the California Desert Conservation Area (CDCA) Plan. These interim classes must 1) consider the area's visual values as summarized in the latest visual resource inventory results and 2) be consistent with the multiple-use objectives and use allocations set forth in the

plan which covers the DHSP site. While a comprehensive plan amendment is underway (Desert Renewable Energy Conservation Plan) which will establish long-term VRM classifications for the entire CDCA Plan area, the CDCA Plan currently does not have established VRM objectives. Therefore, until this landscape-level plan amendment is completed the BLM is establishing interim VRM classes consistent with H-8410-1 for project-level actions within the CDCA planning area, such as the DHSP.

An analysis of scenic quality, viewer sensitivity and distance zones in the most recent Visual Resource Inventory (VRI) for the project study area concluded that the inventory class is VRI II (see Section 3.19.1 and Appendix G-1 for additional discussion of VRI). The CDCA Plan allocation for the project study area is Multiple Use Class (MUC) M, which allows for solar electric facilities. Specific projects must be evaluated through a plan amendment to ensure consistency with all goals and objectives for this class. The conformity of the DHSP with the CDCA Plan's Energy Production and Utility Corridors Element Decision Criteria is shown in Table 3.22-2.

Mitigation Measures VR-1 through VR-5 would be implemented to minimize the visual impacts of the proposed project or any action alternatives. However, the level of contrast with the surrounding landscape would still be high when viewed from a variety of vantage points including elevated viewpoints in surrounding wilderness areas and along I-10. Taking the inventory class into consideration, recent developments that have been undertaken and/or approved in the project study area, the employment of mitigation measures, and the DHSP's consistency with the MUC, an Interim VRM Class IV has been established for the DHSP site. The objective of this class is "…to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt must be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic visual elements."

Note that this interim VRM class assignment applies only to this specific project footprint. Any other projects would need to be analyzed and assigned an interim VRM class on a case by case basis based on an analysis of their conformance with land use plan objectives. Also, the BLM will require that all relevant and reasonable mitigation measures be employed to reduce project contrast to moderate levels (commensurate with Class IV VRM objectives), except for those specific project components and from those specific KOPs where it can be demonstrated that, even with mitigation, the project still has a high degree of contrast.

In addition to the permanent visual contrast created in the landscape, the proposed project and alternatives were analyzed for adverse effects due to lighting and glare, visible dust plumes, as well as temporary construction-related disturbances.

Direct versus Indirect Effects on Visual Resources

The impact discussions presented later in this section address the direct effects on visual resources since visual resources effects tend to almost always be direct. Two exceptions include increased traffic on roadways beyond the immediate DHSP site during construction and perceptions of (visible) regional industrialization. Increased traffic associated with construction is addressed under the construction effects heading. Perceptions of regional industrialization are addressed in the cumulative effects section.

Combined Effects of Solar Facility and Gen-Tie Alternatives

As in other sections of Chapter 4 of this EIS, visual effects analysis is conducted separately for the solar facility alternatives and the gen-tie line alternatives. This methodology allows for a clean comparison among alternatives, and a clean evaluation of the combination of any solar facility action alternative with any gen-tie action alternative. Therefore, the impact analysis below does not present the combined effects of each solar facility action alternative with each gen-tie action alternative. That combination of effects is done in Section 2.14, Summary of Comparison of Effects by Alternative. Nevertheless, for visual resources, it is useful for the analyst to prepare simulations that capture both the solar facility alternatives and the gen-tie line alternatives. Therefore, it is noted that for visual resources the combined effects of the gen-tie action alternatives with any of the solar facility action alternatives are additive, and they typically slightly increase the severity of visual effects compared to the effects of the solar facility alternatives alone, as the solar facility typically represents the most prominent visual feature of the DHSP overall. In addition, the reader is directed to the simulations prepared for the DHSP presented in Appendix A, which simulate the presence of both the solar facility and gen-tie alternatives.

Mitigation Approach

Mitigation for visual resources effects resulting from energy infrastructure and similar types of industrial facilities typically focuses on methods to minimize the visibility of the resulting visual change by (1) relocating the change (action) to a less visible location; (2) screening the change from view; or (3) blending the change with the background (by selective use of coloration and/or screening). By their very nature, solar facilities and transmission lines tend to be large and exposed, and thus, difficult to either hide from view or blend into the background. Also problematic is the construction of permanent access and spur roads and "temporary" cleared areas that become persistent in arid and semi-arid landscapes where vegetation recruitment and growth are slow. These features often cause land scarring and unnatural and discordant demarcations in the vegetation landscape that increase the visual contrast of a project's activities. In some cases there are techniques that can reduce the prominence of land scarring and changes though they may not substantially reduce the adverse effect.

One technique that can be effective in mitigating the visual impact of large transmission structures is changing the structure design. Lattice structure designs tend to blend with background landscapes better when viewed from distance because of the "transparency" effect imparted by the lattice design. However, from closer viewing locations, the lattice structure appears very complex and industrial. Tubular steel structures tend to be more visible at distance than lattice structures because of the solid mass of the vertical support structure and the absence of the transparency effect. However, when viewed from closer viewing locations, the tubular steel structure appears simpler in design and less complex and massive relative to a lattice structure. For the DHSP, the proposed and action alternative gen-tie routes would be visible from a variety of vantagepoints both close and distant. So, there is not an ideal structure design, The tubular design would be less visually contrasting along roadways and adjacent to residences, and the lattice design would be more appropriate for more distant locations in the center of Chuckwalla Valley. However, transitions between different structure designs are inherently very visually contrasting. So, mixing structure types is generally not advisable.

Undergrounding transmission lines can also be an effective solution in mitigating aboveground visual impacts. However, the BLM has previously determined during the Desert Sunlight Solar Farm environmental review process that undergrounding would not be an appropriate mitigation approach in this location.

The following techniques were considered where appropriate for the proposed project and action alternatives:

- Consider alternative low-impact construction techniques to minimize prominent land scarring visible to sensitive viewpoints.
- Require structure, non-specular surface and color treatments to reduce visual contrast associated with specularity and discordant color and/or glare, and facilitate the blending of the structure with the surrounding landscape.
- Require vegetated buffer zones adjacent to major travel corridors to provide partial screening of Project facilities.
- Require revegetation and restoration efforts to mitigate the unnatural demarcation in vegetation landscapes caused by removal of, or changes in the vegetation within the project area as a result of clearing and maintenance.
- Require strategic planting of revegetation to intersect sightlines and screen structures from view to the extent feasible.
- Require the co-location or consolidation of facilities to minimize the proliferation of built facilities and industrial character across the desert landscape.
- Require strategic siting of structures to reduce in-line views of linear facilities and/or reduce the number of structures visible in the primary cone of vision of travelers on major and local roadways.

For each of the visual effects identified, the mitigation approaches discussed above were evaluated for applicability and likelihood of success. In some cases, the combination of existing landscape characteristics and structure prominence and visibility resulted in effects that could not be mitigated. However, where mitigation opportunities were identified, they are discussed.

4.19.2 Applicant Measures

- The following Applicant Measures (AMs) have been incorporated as design features of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project. In some cases, mitigation measures further clarify or expand on AM reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures imposed and the following AMs, the mitigation measures take precedence. Equipment other than the solar panels will have a non-reflective surface and neutral colors to minimize their visual impacts to the extent practical.
- A paint color acceptable to the BLM will be used on all facilities that can be painted to blend the facility with the existing surroundings.
- Nighttime lighting will be limited to areas required for operation, safety, or security, and will be directed or shielded from major roadways or possible outside observers.

- Lighting at high illumination areas not required on a continuous basis will be controlled by switches, motion detectors, etc to light the areas only when required.
- Exterior lights will be hooded and lights will be directed onsite so that light or glare will be minimized.
- Low-pressure sodium lamps and fixtures of a non-glare type will be specified.

4.19.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the DHSP would not be approved by the BLM, and the BLM would not amend the CDCA Plan 1980, as amended. As a result, no solar energy project would be constructed on the proposed project site, and the BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan. Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, no adverse visual effects associated with the DHSP would occur.

4.19.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.19.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.19.6 Alternative 4 – Proposed Solar Project

The proposed solar facility would include the construction and operation of a 150 MW photovoltaic solar facility on approximately 1,208 acres.

Construction

Construction of Alternative 4 would cause temporary visual effects due to the presence of equipment, materials, and workforce. These effects would occur throughout the development area. Construction would involve the use of cranes, heavy construction equipment, temporary storage and office facilities, and temporary laydown/staging areas. Construction would include site clearing and grading, construction of the actual facilities, and site cleanup and restoration. Visible traffic would also increase along Kaiser Road, SR-177, and I-10. Grading activities have the potential to generate dust clouds, which can be visually distracting if not controlled properly

as required in Mitigation Measure VR-1 (see mitigation measures at the end of this sub-section). Construction activities would be visible from Kaiser Road, SR-177, I-10 BLM recreational access roads, the community of Lake Tamarisk, Desert Lily Sanctuary Area of Critical Environmental Concern (ACEC), portions of Joshua Tree Wilderness in Joshua Tree National Park, and the Chuckwalla Mountains Wilderness. Throughout the construction period, the industrial character of the activities would constitute adverse visual effects when viewed from the project vicinity and all of the KOPs. However, the majority of construction activities and equipment brought onto the project site would be temporary in nature, although the vast majority of the area disturbed by construction would eventually be occupied by project facilities (see discussion of Operation and Maintenance impacts below). Those areas of temporary disturbance of the soil surface (characterized by high color, line, and texture contrasts) associated with construction would remain visible from various vantage points for some period after the conclusion of construction activities because revegetation of areas in the desert region where the project is located is difficult and generally of limited success. These longer duration construction-related impacts would be addressed by Mitigation Measure VR-2, which requires successful revegetation of temporarily disturbed areas. It is also anticipated that some construction activity would take place at night, which would result in adverse night lighting visual effects. In order to ensure that substantial adverse construction lighting effects do not occur, Mitigation Measure VR-6 would reduce effects associated with night lighting by requiring strict lighting specifications and controls and operating parameters.

In addition to the direct visual resource impacts, the construction of Alternative 4 would also result in one indirect visual effect. Specifically, visual effects related to an increase in traffic on roadways beyond the immediate project vicinity during construction. Although there would be an increase in vehicle trips on regional roads associated with construction related vehicles, it is not expected that, in the context of existing non-project related traffic, the increased traffic would be noticed by the casual observer, and therefore, the resulting visual effect would not be substantial.

Operation and Maintenance

An analysis of operation and maintenance effects was conducted for the view areas represented by KOPs 1 through 4 (Figure 3.19-3), which were selected for in-depth visual analysis. The results of the effect analysis are discussed below by KOP and presented in the Visual Analysis Summary Table included as Appendix G-2. Contrast Rating Data Sheets are provided in Appendix G-4.

Effects Context for Joshua Tree Wilderness and National Park

The effects discussed below under KOPs 1 and 2 are representative of the visual effects that would be experienced from similar locations, including both lower elevation and elevated viewing opportunities, in the surrounding perimeters of Joshua Tree Wilderness and National Park. While much of this area of the national park is more remote, less accessible, and less used relative to the more accessible regions of the park to the west and north, the area is still an important destination for its geological, backcountry wilderness, and dark sky values. Yet, with increasing distance from the Alternative 4 solar facility site, project effects become less discernible. The lower elevation viewpoint at KOP 1 illustrates the effect of perspective foreshortening, which reduces the apparent size and scale of the project due to a low elevation difference and the

narrow angle of view. At these greater viewing distances, it is at the elevated viewpoints (illustrated by KOP 2) where the greater visual effect would occur as the increased elevation causes the size and shape of the project area to become increasingly apparent, along with its associated form, line, and color visual contrasts.

As illustrated in the viewshed maps presented as Figures 3.19-1A (solar panels) and 3.19-1B (transmission structures), the number of impacted National Park acres within the DHSP viewshed totals 37,508 acres, which represents approximately 4.8 percent of the park's 776,083 total acres. Approximately two-thirds of the impacted acres (25,314 acres) would have views of the solar facility. Furthermore, of the 37,508 impacted park acres, only 7,344 acres, or slightly less than one percent of the park's total acreage, would be within the foreground/middleground viewing distance zone of five miles or less. Another 27,821 acres, or approximately 3.6 percent of the park's total acreage, would be in the background distance zone of 5 to 15 miles. The remaining 2,343 impacted park acres (approximately 0.3 percent of the total park acreage) would be more than 15 miles from the Alternative 4 site. While the total number of impacted park acres is small relative to the whole, all of the park's acreage is important from both a public visitation and sensitivity standpoint and resource protection standpoint. Thus, visual effects on wilderness and parklands should be avoided or minimized where possible. Effective implementation of the mitigation measures presented below will be important.

Of particular concern is Alternative 4's potential effect on the Dark Sky resource that Joshua Tree National Park is known for throughout the National Park System. It is estimated that only approximately 10 percent of the population of the United States is able to see the night sky in its natural, unpolluted state. Joshua Tree National Park is noted for initiating partnerships with surrounding communities in an effort to limit light from spilling over park boundaries. To serve this increasing public interest, Joshua Tree National Park offers a variety of Night Sky programs. In the immediate solar facility region, Dark Sky visitors access the east end of the Pinto Basin at the access gate adjacent to KOP 1. Because any light source in the desert contributes to ambient light pollution and all light sources are adversely cumulative in terms of the effect on human darkness adaptation and the dwindling availability of Dark Sky observation areas, it is essential that substantial steps be taken to ensure that additional night sky light pollution does not occur from implementation of Alternative 4. To accomplish this, effective implementation of Mitigation Measure VR-6, which would reduce adverse visual effects associated with night lighting by requiring strict lighting specifications and controls and operating parameters, would be essential.

KOP 1 – Joshua Tree Wilderness – Eagle Mountains

Figure 4.19-1A presents the existing view from KOP 1 in Joshua Tree Wilderness. The view is to the south from a low ridge at the northeast extent of the Eagle Mountains, at the north end of Chuckwalla Valley. The view captures a majority of the northern Chuckwalla Valley backdropped by the rugged, horizontal form of the Chuckwalla Mountains and Wilderness. Figure 4.19-1B presents a visual simulation that depicts the addition of Alternative 4. As shown in the simulation, the solar facility would appear small in scale relative to the panoramic landscape and result in the introduction of barely discernible built structures that, at an approximately eight-mile viewing distance, would appear as a low, narrow, light gray to tan-colored, horizontal band along the valley floor (for the solar farm), and faintly visible, vertical structural forms (for the transmission structures). Although the solar facility would be centrally located in the field of view from KOP 1, the solar facility structures would not be perceived as prominent features in

the landscape when viewed from these more distant, lower elevation viewpoints within Joshua Tree Wilderness (and National Park), as represented by KOP 1. View impairment of the valley floor or other background landforms and natural features would be minimal. Although the view from this and similar distant view locations would be static, offering extended view durations, these views also have the potential to be partially obscured by poor atmospheric conditions, such as haze.

The fairly indistinct low, horizontal form and line of Alternative 4 would result in weak degrees of structural visual contrast for form, line, color and texture relative to the natural features of the existing landscape. The most notable characteristic of the development would be the color contrast resulting from the reflection of light off the solar panel structural supports (from this viewing angle, the solar panels would be tilted toward the south, away from this viewpoint) and the lighter color of the graded soils. The resulting overall visual change caused by Alternative 4 would be low and would not substantially degrade the existing visual character or quality of the landscape as viewed from KOP 1 and other similar more distant, lower elevation vantagepoints in Joshua Tree Wilderness and National Park. Although the resulting visual effect would be adverse (see discussion below under Section 4.19.16 CEQA Considerations), the low level of change would be allowed under the Interim VRM Class IV management objective. Furthermore, Alternative 4 would retain the existing character of the landscape and would not attract the attention of the casual observer. It is anticipated that the apparent color contrast of the facilities and graded surfaces can be further reduced through effective implementation of Mitigation Measures VR-2 (Revegetation), VR-3 (Project Design to Reduce Visual Contrast), and VR-4 (Surface Treatment), as discussed below.

KOP 2 – Joshua Tree Wilderness – Coxcomb Mountains

Figure 4.19-2A presents the existing view from KOP 2 in Joshua Tree Wilderness along the western flank of the Coxcomb Mountains, northeast of the solar facility site. The view is to the southwest from an elevated vantage point overlooking the predominantly natural appearing northern portion of Chuckwalla Valley backdropped by the rugged, horizontal to angular forms of the Chuckwalla Mountains and Wilderness (to the south and southwest) and Eagle Mountains (to the west). Figure 4.19-1B presents a visual simulation that depicts the addition of Alternative 4. Similar to KOP 1, from this viewing angle, the solar panels would be tilted toward the south, away from this viewpoint. As shown in the simulation, the solar facility would result in the introduction of a large-scale complex of built structures and graded surfaces forming a spatially and visually prominent series of geometric patterns on the valley floor, that would contrast with the predominantly natural appearance of the northern Chuckwalla Valley landscape and background mountains.

The solar facility site would be centrally located within the field of view from this location and view impairment of the valley floor would be noticeable. The view from this and similar locations within the Wilderness would be static, offering extended view durations. At this approximate 4-mile viewing distance, poor atmospheric conditions (haze) would have less of an effect on facility visibility than for more distant views represented by KOP 1. The light-tan color of the graded soils would result in a moderate degree of visual contrast relative to the darker earth-tone colors of the surrounding landforms. The relatively prominent, hard lines associated with the new vegetation demarcations would result in a moderate degree of visual contrast for line.

The prominent geometric patterns of the panel arrays would result in strong form contrast and moderate to strong line contrast with the naturally irregular landforms and lines of the existing landscape. The gray color and reflective characteristics of the panel support structures would contribute to the moderate color contrast with the existing darker grey-greens, tans and reddish hues of the foreground/middleground landscape.

The solar facility, with its prominent geometric patterns, would not repeat the basic elements of the existing natural features in the landscape (rugged and coarse valley floor punctuated with irregular distributions of vegetation clumps and individuals, backdropped by the jagged and angular Coxcomb and Palen mountains). As viewed from this elevated location in Joshua Tree Wilderness, Alternative 4 would not retain the existing character of the landscape and would attract the attention of the casual observer. However, the resulting moderate-to-high level of change would be allowed under the Interim VRM Class IV management objective. Even though the resulting visual effect would be substantial and adverse, it is anticipated that the apparent color contrast of the facilities and graded surfaces can be reduced somewhat through effective implementation of Mitigation Measures VR-2 (Revegetation), VR-3 (Project Design to Reduce Visual Contrast), and VR-4 (Surface Treatment), as discussed below.

KOP 9 – Joshua Tree Wilderness at the eastern-most extent of the Eagle Mountains – Alternatives 4, 5, 6, and 7

Appendix G5 presents a time-lapse visual simulation that depicts the view of the Desert Harvest tracking solar panels throughout a day as the panels articulate from east to west, as viewed from KOP 9 in Joshua Tree Wilderness, approximately five mile to the west of the project site. Also shown in the simulation is the substantially larger Desert Sunlight solar project, which is located immediately north of the Desert Harvest Project (to the left in the simulation). This view is to the east toward the project site from a portion of Joshua Tree Wilderness at the eastern-most extent of the Eagle Mountains. As shown in the simulation, the Desert Harvest panels track the sun throughout the day and there is no noticeable glare or glint off the panels that is visible from KOP 9. During the morning hours, the brighter band of color that creates a “lake effect” and the relatively brief episode of reflected sun that does occur (approximately 26 seconds into the video) is actually from the adjacent Desert Sunlight fixed tilt solar panels. Up until just before midday, the view from KOP 9 is capturing the backside of the Desert Harvest tracking panels, which is why they appear darker relative to the Desert Sunlight solar field. At approximately mid-day, the Desert Harvest panels are in an approximate horizontal position and the sun has already reached its position due south (to the right out of the field of view). In the afternoon and evening when the front of the Desert Harvest solar panels would be visible from KOP 9, the panels are essentially reflecting the color hues of the background mountains and sky. What the time-lapse simulation shows is that the Desert Harvest tracking panels would exhibit minimal to no perceptible glare or glint as viewed from KOP 9. Although this level of change would be allowed under the Interim VRM Class IV management objective, implementation of Mitigation Measures VR-2 (Revegetation), VR-3 (Project Design to Reduce Visual Contrast), and VR-4 (Surface Treatment) would still be required. This determination is applicable to all of the solar field alternatives (4, 5, 6, and 7).

KOP 3 – Kaiser Road in the Immediate Project Vicinity

Figure 4.19-3A presents the existing view to the east from KOP 3 on Kaiser Road in the immediate vicinity of Alternative 4. The view captures a central portion of the northern Chuckwalla Valley backdropped by the southern extent of the Coxcomb Mountains and the more distant Palen Mountains. Figure 4.19-3B presents a visual simulation that depicts a portion of the solar facility. As shown in the simulation, the solar facility would result in the introduction of visually prominent built structures into a foreground/middleground landscape generally lacking similar built features of industrial or technological character. The solar facility would appear as prominent horizontal and geometric features with distinct horizontal lines associated with specific panel arrays, development units, and vegetative demarcations from graded surfaces. The resulting form and line contrast of the solar panels would be moderate-to-strong relative to the natural character of the existing landscape with its rugged horizontal to angular forms and irregular lines. The apparent color of the solar panels would vary depending on viewpoint location, view orientation, sun angle, time of day, and meteorological conditions. Apparent color could range from bluish and bluish-gray hues (as shown in the simulation), to brighter light grays, to medium dark gray, and even black when directly facing a panel array and viewing north. The various colors would result in moderate degrees of visual contrast relative to the lighter earthtones and muted greens of the existing landscape. Similarly, the smooth industrial surfaces and textures of the solar arrays would appear out of place in this rugged desert landscape with the existing matte to granular textures of rock, soil, and vegetation. Also, the solar arrays would cause partial view blockage of the Chuckwalla Valley floor. These contrasts would substantially degrade the existing visual character and quality of the Alternative 4 site and its surrounding landscape.

The solar facility with its prominent horizontal geometric structural forms and lines and smooth industrial surfaces would not repeat the basic elements of the existing natural features in the landscape (rugged and coarse valley floor punctuated with irregular distributions of vegetation clumps and individuals, backdropped by the jagged and angular Coxcomb and Palen mountains). Also, the solar facility would constitute a co-dominant to dominant feature in the landscape, depending on proximity to the development area, view orientation, and presence or absence of intervening vegetation, thus, attracting the attention of the casual observer. However, the resulting overall moderate-to-high level of change would be allowed under the applicable Interim VRM Class IV management objective (see the VRM Contrast Rating form for KOP 3 in Appendix G-4).

Although the resulting visual effect would be substantial when viewed from KOP 3 and other at-grade vantage points in relatively close proximity to the Alternative 4 site (see discussion below under Section 4.19.16 CEQA Considerations), it is anticipated that the adverse visual effect could be reduced with the effective implementation of Mitigation Measures VR-2 (Revegetation), VR-3 (Project Design to Reduce Visual Contrast), VR-4 (Surface Treatment), and VR-5 (Vegetative Screening Buffer), as discussed below. Also, effective implementation of Mitigation Measure VR-6 (Night Lighting Control) would be essential to ensure that additional night sky light pollution does not occur from implementation of Alternative 4. Of particular importance is Mitigation Measure VR-5, which calls for the maintenance of a minimum 200-foot wide undisturbed, naturally vegetated buffer along the Alternative 4 perimeters and nearby roadsides. The purpose of the buffer is to provide vegetative screening of the low-profile panel arrays. The minimum 200-foot width of the buffer is necessary given the scarcity of natural vegetation in this

landscape. Although the buffer may not completely screen the Alternative 4 facilities from view (particularly the water tank, O&M facility, substation, and collector poles), the intent is to provide sufficient screening to enable only intermittent views of the predominant photovoltaic arrays, thus reducing the prominence of structural contrast. At present, the more extended view durations of the Alternative 4 site from Kaiser Road can range from approximately 30 seconds to approximately 90 seconds. The vegetative buffer and screening vegetation would break up the visual mass of the arrays, reduce the view durations, and limit the visual access to the solar facility site, thereby helping to reduce the resulting adverse visual effect.

Effects Context for Desert Lily Sanctuary ACEC

The effects discussed below under KOP 4 are representative of the visual effects that would be experienced from various locations within the southern half of the ACEC, which is an important and popular regional destination because of its botanical values. As illustrated in the viewshed maps presented as Figures 3.19-1A (solar panels) and 3.19-1B (transmission structures), the number of potentially impacted ACEC acres within the Alternative 4 viewshed (based on terrain-only modeling) totals 2,049 acres, which represents almost all of the ACEC's 2,055 total acres. Approximately 39 percent of the impacted acres (796 acres) would be within the viewshed of the low-profile Alternative 4 solar facility, all within the foreground/middleground distance zone. (By comparison, approximately 56 percent of the impacted acres (1,141 acres) would be within the viewshed of the high-profile Alternative 7 solar facility, again, all within the foreground/ middleground distance zone.) Given the ACEC's importance from both a public visitation and sensitivity standpoint, visual effects on the ACEC should be avoided or minimized where possible, and effective implementation of the mitigation measures presented below will be important. However, it is important to remember that intervening vegetation, which is not taken into consideration in the digital terrain modeling, would substantially limit views of the solar facility from the ACEC, particularly for the proposed low-profile facility (as discussed below under KOP 4).

KOP 4 – Desert Lily Sanctuary ACEC

Figure 4.19-4A presents the existing view to the west from KOP 4 in the Desert Lily Sanctuary ACEC, just east of SR-177. The view encompasses a portion of the northern Chuckwalla Valley backdropped by the Eagle Mountains. Figure 4.19-4B presents a visual simulation that demonstrates the inability to view the low-profile solar farm and the limited visibility of the more distant transmission line. As shown in the simulation, the Proposed project (indicated by the white arrows) would be screened from view by intervening vegetation. The transmission structures (indicated by the black arrows) are only intermittently visible and appear barely discernible at this viewing distance of approximately 5.5 miles. As a result, neither the solar farm nor the transmission line structures would be perceived as prominent features in the landscape, and view impairment of the valley floor or other background landforms would be minimal. The resulting structural form and line contrast would be weak, and there would be no discernible color or texture contrast when viewed from the Desert Lily Sanctuary ACEC. Also, as viewed from the ACEC, the project would retain the existing character of the landscape and would not attract the attention of the casual observer. The resulting very low level of change would be allowed under the Interim VRM Class IV management objective (see the VRM Contrast Rating form for KOP 4 in Appendix G-4).

This viewpoint analysis is representative of other possible views from the ACEC and illustrates the effectiveness of an intervening vegetative buffer (as required by Mitigation Measure VR-5) in blocking sightlines to the proposed project site from KOP 4. Therefore, the ACEC would not be adversely affected by Alternative 4, and the resulting visual effect would not be substantial (see discussion below under Section 4.19.16 CEQA Considerations). Although no adverse visual effects are expected to occur at the Desert Lily Sanctuary ACEC, Mitigation Measures VR-2 through VR-6 are still required to further mitigate visual effects at this KOP and to reduce the possibility that any unexpected adverse visual effects occur.

Linear Viewpoint Analysis

Section 3.19.2 and Figure 3.19-2 present a linear viewpoint analysis of the solar facility site (not the gen-tie alternative routes) from the three major roadways in the project area – Kaiser Road, SR-177, and I-10. As noted in that analysis, unlike stationary KOP views, transient views, while traveling along roadways, are variable and constantly change depending on viewing angles and the presence of intervening screening. The following paragraphs briefly encapsulate the overall impact on views from the three main roadways by direction of travel.

Northbound Kaiser Road. There are numerous Alternative 4 site viewing opportunities along northbound Kaiser Road; some in close proximity, and some that are more distant; some with unobstructed views, and others that are partially or completely obscured by roadside and intervening vegetation. Project facilities that are visible within the primary cone of vision of travelers on Kaiser Road would be visible for more extended view durations. Facilities that are visible at right angles to the direction of travel would be visible for briefer durations of view. Segments represented by red and orange in Figure 3.19-2 would have the clearest views of the solar facility and would experience the greatest visual impact. KOP 3 is representative of the more proximal views in this category but includes only 35 percent of the total viewing opportunity along northbound Kaiser Road. The remaining 65 percent of northbound Kaiser Road would have limited to no views of the solar facility and would likely not experience substantial visual effects. These less affected road segments are concentrated further south on Kaiser Road in the vicinity of Lake Tamarisk.

Southbound Kaiser Road. Viewing opportunities along southbound Kaiser Road are limited to the road segment immediately adjacent to the Alternative 4 site (90 degree view from the road), and extending north approximately 3.2 miles. Project facilities would be visible for an extended duration of view and within the primary cone of vision of travelers on southbound Kaiser Road for most of this segment as the road converges on the Alternative 4 site, before turning to pass immediately west of the site. Facilities that are visible at right angles to the direction of travel would be visible for a shorter duration of view. Views from all of the southbound segment would be minimally screened (represented by the orange color in Figure 3.19-2) and, for the most part, would have unobstructed views of the solar facility. Therefore, southbound travelers on Kaiser Road approaching from the north would experience a substantial visual impact.

Northbound SR-177. There are numerous opportunities to view the solar site along the first 5.7 miles of northbound SR-177 north of Desert Center (see Figure 3.19-2). However, only the southernmost 1.8 miles of SR-177, closest to Desert Center, would have unobstructed views of the site (represented in red in Figure 3.19-2). This segment would experience substantial visual impact. The more northerly 3.9 miles of SR-177, in closer proximity to the Alternative 4 site,

would have limited to no views of the solar facility (shown in yellow and green in Figure 3.19-2) due to intervening vegetation and structures and would likely not experience substantial visual effects. Similarly, the Desert Lily Sanctuary ACEC, adjacent and at the northern range of views along SR-177, is also exposed to limited Alternative 4 site viewing opportunities due to screening by intervening vegetation. Thus, KOP 4 is also somewhat representative of views along SR-177 in terms of the limited viewing opportunity.

Southbound SR-177. Viewing opportunities along southbound SR-177 are limited to 3.2 miles of road segments with minimal to no site viewing opportunities due to the presence of considerable vegetative screening. Therefore, southbound travelers on SR-177 would not experience a substantial visual impact from the solar facility.

Eastbound I-10. There is considerable viewing opportunity from eastbound I-10 when approaching the vicinity of Desert Center from the west. Of the 9.5 miles of potential solar facility views, 8.5 miles (or 89 percent) have relatively unobstructed views of the solar facility site and would experience substantial visual impact from the solar facility in spite of a greater viewing distance ranging from approximately 5.5 to 11.5 miles. KOP 8A is representative of the solar facility views in this category even though the viewpoint is located on the westbound side of I-10.

Westbound I-10. There is also considerable viewing opportunity along westbound I-10 when approaching the vicinity of Desert Center from the east. Of the 9.3 miles of potential solar facility views, approximately 7.2 miles (or 77 percent) have unobstructed views of the solar facility site and would experience substantial visual impact from the solar facility in spite of a viewing distance ranging from approximately 5.5 to 11 miles. KOP 8A on westbound I-10 is representative of the solar facility views in this category.

Decommissioning

After the end of the solar facility's useful life, it would require decommissioning with the intent of returning the Alternative 4 area to pre-project conditions. However, as of the date of this visual analysis, no Decommissioning Plan has been prepared. Short-term, deconstruction activities would result in visual impacts similar to construction with the visible intrusion of equipment, materials, deconstruction activities, and increased road traffic. Longer-term, even the complete removal of the facility would leave a very prominent visual effect over the entire site due to the strong color and line contrast created between graded, disturbed soil areas and undisturbed soil and vegetated areas absent such unnatural lines of demarcation and color contrasts. In addition, revegetation in this desert region is difficult and generally of limited success. Therefore, visual recovery from land disturbance associated with closure and decommissioning activities would likely occur only over a very long period of time. Mitigation Measure VR-2 requires the project owner to achieve site restoration to the extent feasible, pursuant to a Decommissioning Plan approved by the BLM.

Mitigation Measures

The following mitigation measure shall be implemented to reduce effects related to Construction Impacts.

MM VR-1 **Reduce Construction Related Impacts.** The project owner shall minimize construction related impacts as described below.

- Minimize Vegetation Removal. Only the minimum amount of vegetation necessary for the construction of structures and facilities shall be removed. Topsoil located in areas containing sensitive habitat, to the extent such areas are not already avoided, shall be conserved during excavation and reused as cover on disturbed areas to facilitate re-growth of vegetation.
- Reduce Land Scarring and Vegetation Clearance associated with gen-tie Construction. Vegetation within the gen-tie ROW and ground clearing at the foot of each tower and between towers shall be limited to the clearing necessary to comply with electrical safety and fire clearance requirements.
- Reduce Color Contrast of Land Scars and Graveled Surfaces. Where construction would unavoidably create land scars visible from sensitive public viewing locations, disturbed soils shall be treated with an appropriate material (Eonite, Permeon, or similar). The material shall be approved by the BLM and the intent shall be to reduce the visual contrast created by the lighter-colored disturbed soils with the darker vegetated surroundings. The project owner shall consult with the BLM and/or their authorized representative on a site-by-site basis and obtain written approval prior to the use of any colorants.
- Reduce In-Line Views of Land Scars that would result from construction of gen-tie access roads. Access or spur roads shall be constructed at appropriate angles from the originating, primary travel facilities to minimize extended, in-line views of newly graded terrain. All proposed new access roads shall be evaluated for their visibility from sensitive viewing locations prior to final design. Prior to final design, the project owner shall consult with the BLM and a Designated Biologist to identify the following.
    - The access roads or portions of roads that would be highly visible from sensitive viewing areas.
    - Approximate location and length of alternative access road routes that would replace proposed roads. Define habitat affected and steepness of terrain for consideration of habitat and erosion impacts. The biologist and visual resources specialist shall evaluate whether the overall impacts of the alternate access road are less than that of the original access road design.
    - Areas where “drive and crush” access is a feasible measure to avoid access road scars (i.e., no grading or vegetation removal is required). If this means of access is to be used, the project owner shall define frequency of driving and vehicle types such that a biologist confirms that vegetation would be likely to recover.
    - The project owner shall submit a map and/or table to the BLM for review and approval at least 60 days before the start of construction to document the roads, or portions of roads, that have been evaluated for reduction of in-line views or scars and the proposed resolution for each access road. Resolution options include retaining proposed roads due to greater impacts from alternative routes, use “drive and crush” access, or develop alternate access road routes.

- Prohibit Construction Marking of Natural Features. No paint or permanent discoloring agents shall be applied to rocks or vegetation to indicate survey or construction activity limits.
- Fugitive Dust, Waste, and Trash Control. To minimize fugitive dust on the proposed project site, a dust control plan shall be developed which will place limits on the speed of travel for construction vehicles and will apply dust palliatives to the site, as described in AM-AIR-1 and AM-AIR-6 and in compliance with SCAQMD Rule 403. Furthermore, during construction, all trash and food-related waste shall be placed in self-closing containers and removed weekly as needed from the site

The following mitigation measure shall be implemented to reduce effects related to Grading and Surface Disturbance Impacts.

MM VR-2 **Revegetation.** The project owner shall minimize the amount of ground surface to be disturbed and shall revegetate disturbed soil areas as described below.

- Limit Disturbance Areas. The boundaries of all areas to be disturbed (including staging areas, access roads, and sites for temporary placement of spoils) shall be delineated with stakes and flagging before construction in consultation with the Designated Biologist and BLM's visual specialist. Parking areas and staging and disposal site locations shall be similarly located in areas approved by the Designated Biologist and BLM's visual specialist. All disturbances by project vehicles and equipment shall be confined to the staked and flagged areas.
- Minimize Road Impacts. New and existing roads that are planned for construction, widening, or other improvements shall not extend beyond the staked and flagged limits as described above. All vehicles passing or turning around shall do so within the limits or in previously disturbed areas. Where new access is required outside of existing roads or the construction zone, the route shall be clearly marked (i.e., staked and flagged) before the start of construction in consultation with the Designated Biologist and the BLM's visual specialist.
- Revegetation of Temporarily Disturbed Areas. The project owner shall prepare and implement a Revegetation Plan (as required in Mitigation Measure VEG-5) to restore all areas subject to temporary disturbance to pre-project grade and conditions. Temporarily disturbed areas within the project area include, but may not be limited to, all proposed locations for linear facilities, temporary access roads, construction work temporary lay-down areas, and construction equipment staging areas. Revegetation shall minimize visual effects by re-establishing the pre-existing colors, textures, and forms of the landscape and shall visually integrate the adjacent edges by removing the lines of demarcation. Plantings as part of revegetation along roadways and the boundaries of other disturbed areas shall be irregularly placed with scalloped edges to reduce the hard line visual impact, especially as seen from Kaiser Road and SR-177.

No more than 30 days following the publication of the BLM's Record of Decision/ROW Issuance, whichever comes first, the project owner shall submit to the BLM a final agency-approved Revegetation Plan that has been reviewed and approved by the BLM.

The following mitigation measures shall be implemented to reduce the effects related Project-induced visual contrast. All mitigation measures shall be approved by the BLM or a BLM approved landscape architect prior to construction.

MM VR-3 **Project Design to Reduce Visual Contrast.** The project owner shall use proper design fundamentals to reduce the visual contrast to the characteristic landscape. These include proper siting and location; reduction of visibility; repetition of form, line, color (see Mitigation Measure MM VR-4) and texture of the landscape; and reduction of unnecessary disturbance. The project owner shall provide to the BLM for review and approval, a draft Project Design Plan describing the siting, placement and other design considerations to be employed to minimize project contrast. The draft plan must explain how the design will minimize visual intrusion and contrast by blending the earthwork, vegetation manipulation and facilities with the landscape. The draft plan shall be submitted to BLM for approval at least 30 days prior to (a) ordering the first structures that are to be color-treated during manufacture, or prior to construction of any of the facility components, whichever comes first. If the BLM notifies the project owner that revisions to the plan are needed before the plan can be approved, within 30 days of receiving that notification, the project owner shall prepare and submit for review and approval a revised plan. Design strategies to address these fundamentals shall be based on the following factors.

- Earthwork. Select locations and alignments that fit into the landforms to minimize the sizes of cuts and fills.
- Vegetation Manipulation. Use existing vegetation to screen the development from public viewing. Feather and thin the edges of cleared areas and retain a representative mix of plant species and sizes.
- Gen-tie Structures. Minimize the number of gen-tie structures and combine different activities in one structure where possible. Use natural, self-weathering materials and chemical treatments on surfaces to reduce color contrast. Bury all or part of the structure. Use natural appearing forms to complement the characteristic landscape. Screen the structure from view by using natural landforms and vegetation. Reduce the line contrast created by straight edges. Use road aggregate and concrete colors that match the color of the characteristic landscape surface. Co-locate facilities within the same disturbed corridor.
- Reclamation and Restoration. Blend the disturbed areas into the characteristic landscape including gen-tie access roads and disturbed areas created during solar facility perimeter fence installation. Replace soil, brush, rocks, and natural debris over these disturbed areas. Newly introduced plant species shall be of a form, color, and texture that blend with the landscape.

MM VR-4 **Surface Treatment of Project Structures/Buildings**. The project owner shall treat the surfaces of all project structures and buildings visible to the public such that: a) their colors minimize visual contrast by blending with the characteristic landscape colors; b) their colors and finishes do not create excessive glare; and c) their colors and finishes are consistent with local policies and ordinances. The PV structure frame and connection pins must be properly treated during the manufacturing process to avoid any reflective properties. The transmission structures and conductors shall be non-specular and nonreflective, and the insulators shall be nonreflective and nonrefractive. The project owner shall consider the use of special galvanizing treatments or post manufacture application of chemical treatments (such as Natina Steel) to ensure that transmission structures are sufficiently dulled and non-reflective and of the appropriate color to blend effectively with the surrounding landscape. The project owner shall comply with BLM requirements regarding appropriate surface treatments for project elements.

The project owner shall provide to the BLM for review and approval, a draft Surface Treatment Plan describing the application of colors and textures to all new facility structures, buildings, walls, fences, and components comprising all facilities to be constructed. The draft Surface Treatment Plan must explain how the design will reduce glare and minimize visual intrusion and contrast by blending the facilities with the landscape. The draft plan shall be submitted to BLM for approval at least 30 days prior to (a) ordering the first structures that are to be color-treated during manufacture, or prior to construction of any of the facility components, whichever comes first. If the BLM notifies the project owner that revisions to the plan are needed before the plan can be approved, within 30 days of receiving that notification, the project owner shall prepare and submit for review and approval a revised plan. The draft Surface Treatment Plan shall include the following.

- Specification, and 11” x 17” color simulations at life-size scale, of the treatment proposed for use on project structures, including structures treated during manufacture.
- A list of each major structure, building, tower and/or pole, and fencing specifying the color(s) and finish(es) proposed for each (colors must be identified by name and by vendor brand or a universal designation).
- Two sets of brochures and/or color chips for each proposed color.
- A detailed schedule for completion of the treatment.
- A procedure to ensure proper treatment maintenance for the life of the project.

Until the project owner receives notification of approval of the Surface Treatment Plan by the BLM, the project owner shall not specify to the vendors the treatment of any buildings or structures treated during manufacture or perform the final treatment on any buildings or structures treated on site. Additionally, construction activities shall not start until the BLM’s approval of the plan has been received.

Within 14 days following the completion of treatment on any facility component, the project owner shall notify the BLM that the component (array, structure, or building) is ready for inspection.

MM VR-5 **Screening Vegetation Buffer**. The project owner shall maintain a minimum 200-foot wide undisturbed, naturally vegetated buffer along Kaiser Road where the solar array would be adjacent to the road. The purpose of the buffer is to provide adequate vegetative screening of the low-profile panel arrays and partial screening of the high-profile arrays. The minimum 200-foot width of the buffer is necessary given the relatively low density of natural vegetation in this landscape. Although the buffer may not completely screen the proposed project site from view, the intent is to provide sufficient screening to enable only intermittent views of the arrays, thus reducing the prominence of structural contrast.

No fewer than 30 days prior to the start of construction, the project owner shall provide to the BLM for review a draft Screening Plan that illustrates the undisturbed area. Following the BLM's review and comment period, and no fewer than 15 days prior to the start of construction, the project owner shall provide the final Screening Plan to the BLM.

The following mitigation measure shall be implemented to reduce the adverse effects of night lighting (skyglow, glare, light trespass, light clutter) on the regional Dark Sky resource.

MM VR-6 **Night Lighting Control.** Due to the project's location within a nationally significant Dark Sky resource area, night lighting is to be avoided where possible and minimized under all circumstances. To accomplish this, the project owner shall prepare a Night Lighting Management Plan that incorporates the following general principles and specifications.

- Always-on security lighting is to be limited to one low-wattage, fully shielded, full cutoff light fixture at the main entrance to the facility. All other security lighting is to be motion activated only through the use of passive infrared sensors and controlled as specific zones such that only targeted areas are illuminated. No other lighting is to be utilized on a nightly basis when the facility is not occupied.
- Lighted nighttime maintenance is to be minimized or avoided as a routine practice and should only occur during emergencies. In particular, night-lighted maintenance activities shall be avoided during primary Dark Sky hours, meaning no maintenance lighting shall be used later than two hours after sunset and no earlier than two hours before sunrise.
- If a nighttime maintenance activity is anticipated to be necessary, the scheduling of that activity must be coordinated with the Joshua Tree National Park Night Sky Program Manager to ensure that the nighttime maintenance activity does not occur during a scheduled Night Sky Program.
- Under all circumstances, the use of night lighting is to be absolutely minimized.

Consistent with safety and security considerations, the project owner shall design and install all permanent exterior lighting and all temporary construction lighting such that: a) lamps and reflectors are not visible from beyond the solar farm site including any off-site security buffer areas; b) lighting shall not cause excessive reflected glare; c) direct lighting shall not illuminate the nighttime sky, except for required FAA aircraft safety lighting (which shall be an on-demand, audio-visual warning system that is triggered by radar technology if technically and economically feasible, and if allowed by the FAA); d) illumination of the Proposed project and its immediate vicinity shall be minimized; e) skyglow caused by Project lighting will be avoided; and f) the Night Lighting Management Plan (see below) shall comply with local policies and ordinances. All permanent light sources shall be below 3,500 Kelvin color temperature (warm white) and shall be full cutoff fixtures.

No fewer than 30 days prior to the start of construction, the project owner shall submit to the BLM and National Park Service (NPS) Joshua Tree National Park for review and approval a draft Night Lighting Management Plan. Following the BLM's and NPS' review of the draft Night Lighting Management Plan, and not fewer than 15 days prior to the start of construction, the project owner shall submit to the BLM and NPS for review and approval, a final Night Lighting Management Plan. Construction activities shall not start until BLM's and NPS's approvals of the plan have been received. The Night Lighting Management Plan shall include the following.

- Specification that LPS or amber LED lighting will be emphasized, and that white lighting (metal halide) would: a) only be used when necessitated by specific work tasks; b) would not be used for dusk-to-dawn lighting; and c) would be less than 3500 Kelvin color temperature.
- Specifications and maps of all lamp locations, orientations, and intensities including security, roadway, and task lighting.
- Specifications of each light fixture and each light shield.
- Total estimated outdoor lighting footprint expressed as lumens or lumens per acre.
- Detailed list of anticipated circumstances and activities that would require night lighting including the expected frequency of the activity, the duration of the activity, and the expected amount of lighting that would be necessary for that activity.
- Definition of the threshold for substantial contribution to light pollution in Joshua Tree National Park, in coordination with the Night Sky Program Manager (see below).
- Specifications on the use of portable truck-mounted lighting.
- Lighting design shall consider setbacks of proposed project features from the proposed project boundary to help satisfy the lighting mitigation requirements.

- Light fixtures that could be visible from beyond the proposed project boundary shall have cutoff angles sufficient to prevent lamps and reflectors from being visible beyond the proposed project boundary, including security lighting.
- Specification of motion sensors and other controls to be used, especially for security lighting such that lights operate only when the area is occupied.
- Surface treatment specification that will be employed to minimize glare and skyglow.
- Results of a Lumen Analysis (based on final lighting plans), in consultation with the NPS Night Sky Program Manager (Chad Moore – [970] 491-3700), in order to determine the extent of night lighting exposures on the surrounding NPS lands. If the lighting exposure on NPS lands exceeds the allowable threshold (which is to be determined in consultation with the NPS Night Sky Program Manager), additional control measures shall be instituted to reduce the lighting exposures to levels below the action threshold.
- Documentation that the necessary coordination with the NPS Night Sky Program Manager has occurred.

Residual Impacts and Unavoidable Adverse Effects

Land scarring and vegetation clearance. It is expected that even with effective implementation of Mitigation Measures VR-1 and VR-2, the residual effects associated with land scarring and vegetation clearance from Alternative 4 would remain for many years given the difficulty of successful revegetation in an arid environment. This would result in an unavoidable, long-term, adverse effect to visual resources.

Structural visual contrast. It is expected that, given the scale of the solar facility and the availability of considerable visual access to the Alternative 4 area, even with effective implementation of Mitigation Measures VR-2, VR-3, VR-4, and VR-5, the residual effects associated with introduced visual contrast from installation of Alternative 4 would remain for the life of the project. This would result in an unavoidable, long-term, adverse effect to visual resources.

Adverse effect on scenic vistas. It is expected that, given the scale of Alternative 4 and the availability of elevated viewing perspectives from surrounding wilderness areas that overlook the northern Chuckwalla Valley, even with effective implementation of Mitigation Measures VR-2, VR-3, VR-4, and VR-5, the residual effect associated with the prominence of Alternative 4 and the introduction of industrial character and structural visual contrast to the field of view from backcountry scenic vistas would still result in substantial adverse visual effects. This would result in an unavoidable, long-term adverse effect to visual resources.

Inconsistency with public policy. Although the levels of change caused by Alternative 4 would be allowed under the Interim VRM Class IV management objective, the solar facility would be inconsistent, after mitigation, with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1.

4.19.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would remain in the same location as Alternative 4 and would use the same project boundaries as Alternative 4 except that it would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA) as shown on Figure 2-9, Alternative 5: Solar Project Excluding WHMA.

Construction

Construction effects for this alternative would be the same as described for Alternative 4. The reader is referred to Section 4.19.6 for a discussion of construction effects.

Operation and Maintenance

Operation and maintenance effects for this alternative would essentially be the same as for Alternative 4. There would be no discernible difference between Alternative 5 and Alternative 4 when viewed from any of the KOPs. Therefore, the KOP analyses, contrast ratings, and conclusions presented for Alternative 4 are applicable to Alternative 5. The reader is referred to Section 4.19.6 for a discussion of operation and maintenance effects that would be experienced under both Alternative 4 and Alternative 5.

Decommissioning

Decommissioning effects for this alternative would be the same as described for Alternative 4. The reader is referred to Section 4.19.6 for a discussion of decommissioning.

Mitigation Measures

Mitigation Measures VR-1 through VR-6 would also apply to Alternative 5. The reader is referred to Section 4.19.6 for a complete description of these measures.

Residual Impacts and Unavoidable Adverse Effects

The residual impacts and unavoidable adverse effects of Alternative 5 would be the same as for Alternative 4. The reader is referred to Section 4.19.6 for a complete discussion of these effects.

4.19.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would remain in the same location as Alternative 4 and would use the same project boundaries as Alternative 4 except that it would exclude the 155-acre southern parcel and a small portion of the northern parcel that contains a sensitive plant species, crucifixion thorn, as shown on Figure 2-10, Alternative 6: Reduced Footprint Solar Project.

Construction

Construction effects for this alternative would be the same as described for Alternative 4 above. The reader is referred to Section 4.19.6 for a discussion of construction effects.

Operation and Maintenance

Operation and maintenance effects for this alternative would essentially be the same as for Alternative 4. Therefore, the KOP analyses, contrast ratings, and conclusions presented for Alterna-

tive 4 are applicable to Alternative 6. The reader is referred to Section 4.19.6 for a discussion of operation and maintenance effects that would be experienced under both Alternative 4 and Alternative 6. The only location(s) from which a noticeable difference between Alternative 4 and Alternative 6 would be perceived would be from portions of Kaiser Road. With the elimination of the smaller southern development area immediately adjacent to Kaiser Road, the solar facility would have the potential to become noticeably less visible to travelers on Kaiser Road. Specifically, the key to minimizing visibility of the low profile solar arrays is to maintain a vegetation screening buffer of sufficient depth between the solar facility and the at-grade viewing locations. By eliminating the (southern) development area closest to viewers on Kaiser Road, it should be easier to maintain an adequate screening buffer (of at least 200 feet) for the project overall, as required in Mitigation Measure VR-5. As a result, Alternative 6 would have fewer visual impacts relative to either Alternative 4 or Alternative 5. See also the relevant discussion of linear viewpoint effects in Section 3.19.1 and 4.19.6.

Decommissioning

Decommissioning effects for this alternative would be the same as described for Alternative 4. The reader is referred to Section 4.19.6 for a discussion of decommissioning.

Mitigation Measures

Mitigation Measures VR-1 through VR-6 would also apply to Alternative 6. The reader is referred to Section 4.19.6 for a complete description of these measures.

Residual Impacts and Unavoidable Adverse Effects

The residual effects and unavoidable adverse effects of Alternative 6 would be the same as for Alternative 4. The reader is referred to Section 4.19.6 for a complete discussion of these effects.

4.19.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6, which is to say the same location and boundaries as Alternative 4 except that it would exclude the 155-acre southwestern parcel and a small portion of the northern parcel that contains a sensitive plant species, crucifixion thorn, as shown on Figure 2-10, Alternative 6: Reduced Footprint Solar Project. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet.

Construction

Construction effects for this alternative would be the same as described for Alternative 4 above. The reader is referred to Section 4.19.6 for a discussion of construction effects.

Operation and Maintenance

An analysis of operation and maintenance effects was conducted for the view areas represented by KOPs 1A, 3A, and 8A (Figure 3.19-3), which were selected for in-depth visual analysis. The results of the effect analysis are discussed below by KOP and presented in the Visual Analysis Summary Table included as Appendix G-2. Contrast Rating Data Sheets are provided in Appendix G-4.

Effects Contexts for Joshua Tree Wilderness and National Park and Desert Lily Sanctuary ACEC

The effects contexts for Joshua Tree Wilderness and National Park and Desert Lily Sanctuary ACEC would be the same for this alternative as described for Alternative 4. The reader is referred to Section 4.19.6 for a discussion of those effects.

KOP 1A – Joshua Tree Wilderness – Eagle Mountains

Figure 4.19-1A presents the existing view from KOP 1/1A in Joshua Tree Wilderness. The view is to the south from a low ridge at the northeast extent of the Eagle Mountains at the north end of Chuckwalla Valley. The view captures a majority of the northern Chuckwalla Valley back-dropped by the rugged, horizontal form of the Chuckwalla Mountains and Wilderness. Figure 4.19-1C presents a visual simulation that depicts the addition of Alternative 7. As shown in the simulation, Alternative 7 would appear relatively small in scale compared to the panoramic landscape and would result in the introduction of a noticeable horizontal, built feature that, at an approximately eight-mile viewing distance, would appear as a low, narrow, variably-colored, horizontal band along the valley floor. Although Alternative 7 would be centrally located in the field of view from KOP 1A, the solar facility would not be perceived as a prominent feature in the landscape when viewed from these more distant, lower elevation viewpoints within Joshua Tree Wilderness (and National Park), as represented by KOP 1A. View impairment of the valley floor or other background landforms and natural features would be minimal. Although the view from this and similar distant view locations would be static, offering extended view durations, these views also have the potential to be partially obscured by poor atmospheric conditions such as haze.

The noticeable low horizontal form and line of the solar farm and fairly indistinct vertical structural elements of the transmission structures would result in weak degrees of structural visual contrast for form and texture. For line and color, the resulting visual contrast would be weak-to-moderate (relative to the natural character of the existing landscape). The most notable characteristic of the development would be the variable color contrast resulting from the reflection of light off the solar panels. The resulting overall visual change caused by Alternative 7 would be low and would not substantially degrade the existing visual character or quality of the landscape as viewed from KOP 1A and other similar, more distant, lower elevation vantagepoints in Joshua Tree Wilderness and National Park. Although the resulting visual effect would be adverse (see discussion below under Section 4.19.16 CEQA Considerations), the low level of change would be allowed under the Interim VRM Class IV management objective. Furthermore, Alternative 7 would retain the existing character of the landscape though it may attract the attention of the casual observer. It is anticipated that the apparent color contrast of the facilities and graded surfaces can be further reduced through effective implementation of Mitigation Measures VR-2 (Revegetation), VR-3 (Project Design to Reduce Visual Contrast), and VR-4 (Surface Treatment).

KOP 3A – Kaiser Road in the Immediate Project Vicinity

There are numerous viewing opportunities of Alternative 7 along Kaiser Road. Some are in close proximity, and some are more distant. Some are with unobstructed views, and others are partially or completely obscured by roadside and intervening vegetation. Project facilities within the primary cone of vision of travelers on Kaiser Road would be visible for more extended view durations. Facilities that are visible at right angles to the direction of travel would be visible for

shorter view durations. KOP 3A represents a compromise in possible views along Kaiser Road in terms of viewing proximity, angle, and duration and is representative of views along those portions of Kaiser Road where views are only partially obstructed by vegetation (and mostly unobstructed). These areas are shown in orange in Figure 3.19-2 and include approximately 1.5 miles of northbound Kaiser Road (out of six miles of potential Project views) and 4.7 miles of southbound Kaiser Road (out of 4.7 miles of potential solar facility views). Farther south on Kaiser Road, in the vicinity of Lake Tamarisk, views of the solar facility would be either substantially or completely screened by intervening vegetation. The reader is referred to Section 3.19.1 and 4.19.6 for additional discussion of the linear viewpoint analysis for Kaiser Road, which also applies to Alternative 7, even with the difference in panel height between Alternative 7 and the other solar facility action alternatives.

Figure 4.19-3C presents the existing view to the northeast from KOP 3A on Kaiser Road in the immediate solar facility vicinity. The view encompasses the open expanse of a central portion of the northern Chuckwalla Valley backdropped by the Coxcomb Mountains. Figure 4.19-3D presents a visual simulation that depicts a portion of the Alternative 7 solar facility. As shown in the simulation, Alternative 7 would result in the introduction of visually prominent built structures into a foreground/middleground landscape generally lacking similar built features of industrial or technological character. The solar facility would appear as prominent horizontal and geometric features with prominent and distinct horizontal lines associated with specific panel arrays, development units, and vegetative demarcations from graded surfaces. The resulting form contrast of the solar panels would be moderate-to-strong relative to the natural character of the existing landscape with its rugged horizontal to angular forms and irregular lines. The apparent color of the solar panels would vary depending on viewpoint location, view orientation, sun angle, time of day, and meteorological conditions. Apparent color could range from bluish and bluish-gray hues (as shown in the simulation), to brighter light grays, to medium dark gray, and even black when directly facing a panel array and viewing north. The various colors would result in moderate-to-strong degrees of visual contrast relative to the lighter earthtones and muted greens of the existing landscape. The prominent line contrast of the solar panels would be strong. The smooth industrial surfaces and textures of the solar arrays would appear out of place in this rugged desert landscape with the existing matte to granular textures of rock, soil, and vegetation. The resulting texture contrast would be moderate. Also, the solar arrays would cause partial view blockage of the Chuckwalla Valley floor. These contrasts would substantially degrade the existing visual character and quality of the Alternative 7 site and its surrounding landscape.

The solar facility with its prominent horizontal geometric structural forms and lines and smooth industrial surfaces would not repeat the basic elements of the existing natural features in the landscape (rugged and coarse valley floor punctuated with irregular distributions of vegetation clumps and individuals, backdropped by the jagged and angular Coxcomb Mountains). Also, the solar farm would constitute a co-dominant to dominant feature in the landscape depending on proximity to the development area, view orientation, and presence or absence of intervening vegetation, thus attracting the attention of the casual observer. However, the resulting overall moderate-to-high level of change would be allowed under the applicable Interim VRM Class IV management objective (see the VRM Contrast Rating form for KOP 3A in Appendix G-4).

Although the resulting visual effect would be substantial when viewed from KOP 3A and other at-grade vantage points in relatively close proximity to the solar facility site (see discussion

below under Section 4.19.16 CEQA Considerations), it is anticipated that the adverse visual effect could be reduced somewhat with the effective implementation of Mitigation Measures VR-2 (Revegetation), VR-3 (Project Design to Reduce Visual Contrast), VR-4 (Surface Treatment), and VR-5 (Vegetative Screening Buffer). Also, effective implementation of Mitigation Measure VR-6 (Night Lighting Control) would be essential to ensure that additional night sky light pollution does not occur from implementation of Alternative 7. Of particular importance is Mitigation Measure VR-5, which calls for the maintenance of a minimum 200-foot wide undisturbed, naturally vegetated buffer along the project perimeters and nearby roadsides. The purpose of the buffer is to provide some vegetative screening of the high-profile panel arrays. The minimum 200-foot width of the buffer is necessary given the scarcity of natural vegetation in this landscape. Although the buffer would not completely screen the project site from view, the intent is to provide sufficient screening to reduce visibility of the arrays, thus, reducing the prominence of structural contrast. At present, the more extended view durations of the Alternative 7 site from Kaiser Road can range from approximately 30 seconds to approximately 90 seconds. The vegetative buffer and screening vegetation would somewhat break up the visual mass of the alternative, thereby reducing the view durations and limiting the visual access to the Alternative 7 site.

KOP 8A – Westbound I-10 East of Desert Center

As discussed above in Section 3.19.1, there are numerous viewing opportunities of Alternative 7 along westbound and eastbound I-10, which experience variable project visibility due to intervening vegetation and structures, changes in view orientation, and the extent to which the solar facility appears within the primary cone of vision of travelers on I-10. As previously noted, a substantial portion of the approximately 9.3 miles of solar facility views along westbound I-10 experience unobstructed views of the Alternative 7 solar facility (see Figure 3.19-2). Project facilities that are visible within the primary cone of vision of travelers on I-10 would be visible for more extended view durations. Facilities that are visible at right angles to the direction of travel would be visible for shorter view durations. While different viewpoints will experience greater or lesser visual contrast, KOP 8A represents a reasonable compromise in possible views along eastbound I-10 in terms of viewing proximity, duration, and angle of view.

Figure 4.19-8C presents the existing view to the northwest from KOP 8A on westbound I-10, north of the proposed Red Bluff Substation site, approximately 5.75 miles east of Desert Center, and approximately 0.2 mile east of the Alternative E span of I-10. The view captures a central portion of the generally natural appearing northern Chuckwalla Valley north of I-10 and backdropped by the Eagle and Coxcomb mountains. Figure 4.19-8D presents a visual simulation that depicts the Alternative 7 solar facility. Given the openness of the terrain and the availability of unobstructed sightlines, travelers on I-10 would be afforded extended viewing durations (particularly westbound travelers) of the solar facility. Adverse atmospheric conditions (e.g., haze) would somewhat impair views of the solar facility.

As shown in the simulation, the solar facility would appear as a relatively prominent horizontal band along the valley floor. Depending on time of day, orientation of the tracking solar panels, and characteristics of the reflected sky due to atmospheric/weather conditions, light reflecting off the solar panels would cause varying color contrasts with the surrounding earthtone landscape that consists of a blend of greens and tans for vegetation and tans for desert soils that transition to lavender and bluish hues at distance. Lighter reflected colors would create weak color contrast

with the light colored sky. These color contrasts would be noticeable from I-10 but would be somewhat tempered by the approximately 6.75- to 7-mile viewing distance. The more proximal gen-tie transmission line would appear as numerous and visually prominent vertical (tubular steel poles) and curvilinear (conductors) built structures in a landscape generally lacking similar built features of industrial or technological character. The vertical forms of the tubular steel poles would contrast with the prominent horizontal nature of the foreground/middleground valley floor. The light gray of the transmission structures would create moderate visual contrast with the earthtone soil and vegetation colors and weak visual contrast against the lighter sky. To the extent it is perceived, the smooth texture of the structures and industrial surfaces would appear out of place in this rugged desert landscape characterized by the matte to granular textures of rock, soil, and vegetation. However, with the greater viewing distances experienced from I-10 and presented in the simulation, the resulting texture contrast would be weak.

As a result, Alternative 7 facilities would cause moderate-to-strong levels of form and line contrast relative to the natural character of the existing landscape. Color contrast would be moderate, and texture contrast would be weak. Also, the solar array would cause noticeable view blockage of the background Chuckwalla Valley floor and Eagle and Coxcomb mountains. These contrasts would substantially degrade the existing visual character or quality of the surrounding landscape causing a moderate-to-high level of change. However, the resulting moderate-to-high level of change would be allowed under the Interim VRM Class IV management objective (see the VRM Contrast Rating form for KOP 8A in Appendix G-4).

Although the resulting visual effect would be adverse and unmitigable when viewed from KOP 8A and other locations along I-10 (see discussion below under Section 4.19.16 CEQA Considerations), **Mitigation Measures VR-3** (Project Design to Reduce Visual Contrast) and **VR-4** (Surface Treatment) are required to reduce the visual impact to the extent possible.

It should be noted that, at the greater viewing distance illustrated in Figure 4.19-8D (approximately 6.75 miles), the Alternative 4 solar field would appear similar to the Alternative 7 solar field simulated in Figure 4.19-8D and there would be minimal perceptible differentiation between the taller solar panels of Alternative 7 and the shorter solar panels of Alternative 4.

Linear Viewpoint Analysis

The linear viewpoint analysis for this alternative would be the same as described for Alternative 4. The reader is referred to Section 4.19.6 for a discussion of linear viewpoints.

Decommissioning

Decommissioning effects for this alternative would be the same as described for Alternative 4. The reader is referred to Section 4.19.6 for a discussion of decommissioning.

Mitigation Measures

Mitigation Measures VR-1 through VR-6 would also apply to Alternative 7. The reader is referred to Section 4.19.6 for a complete description of these measures.

Residual Impacts and Unavoidable Adverse Effects

The residual effects and unavoidable adverse effects of Alternative 7 would be the same as for Alternative 4. The reader is referred to Section 4.19.6 for a complete discussion of these effects.

4.19.10 Alternative A – No Gen-Tie

Under Alternative A, the ROW for the proposed gen-tie line would not be approved by the BLM. As a result, no gen-tie would be constructed and the BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan. Because there would be no gen-tie line approved for the proposed project, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, no adverse visual effects associated with the proposed project would occur.

4.19.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Alternative B would utilize transmission infrastructure developed for the Desert Sunlight solar project by sharing its approved transmission line ROW and infrastructure. However, for the purposes of this EIS, the environmental baseline, also known as the "affected environment," is the existing physical environment in the Chuckwalla Valley, which does yet include any facilities associated with the Desert Sunlight gen-tie as those have not yet been constructed. Therefore, any analysis of the impacts associated with Alternative B relative to the environmental baseline would require an analysis of the impacts of constructing a unique transmission line.

Construction

Construction of Alternative B would cause temporary visual effects due to the presence of equipment, materials, and workforce. These effects would occur throughout the ROW. Construction would involve the use of cranes, heavy construction equipment, vehicles, and temporary laydown/staging areas, and would include site clearing, construction of the support structures, conductor stringing, and site cleanup and restoration of temporary disturbance areas. All of these activities would impact the project vicinity. Visible traffic would also increase along Kaiser Road, SR-177, and I-10. Construction activities have the potential to generate dust clouds, which can be visually distracting. To address those impacts disturbed soils would have to be controlled properly as required in Mitigation Measure VR-1 in order to reduce dust generation. Construction activities would be visible from Kaiser Road, SR-177, I-10, BLM recreational access roads, the community of Lake Tamarisk, Desert Lily Sanctuary ACEC, Joshua Tree Wilderness in Joshua Tree National Park, and the Chuckwalla Mountains Wilderness, and as a result would impact visual resources from those vantage points. Throughout the construction period, the industrial character of the activities would constitute adverse visual effects when viewed from the Alternative B vicinity and KOPs 5, 6, and 8. Much of the area of disturbed soil surfaces (characterized by high color, line and texture contrasts) associated with construction would remain visible from the various viewing vantage points for some period after the conclusion of construction activities because revegetation of areas in the desert region where the gen-tie would be located is difficult and generally of limited success. These longer duration construction-related impacts would be addressed by Mitigation Measure VR-2, which requires successful revegetation of temporarily disturbed areas. It is also anticipated that some construction activity would take place at night, which would result in adverse night lighting visual effects. In order to ensure that adverse construction lighting effects do not occur, Mitigation Measure VR-6 would reduce effects associated with night lighting by requiring strict lighting specifications and controls and operating parameters.

In addition to the direct visual resource impacts, the construction of Alternative B would also result in one indirect visual effect, which is an increase in traffic on roadways beyond the immediate project vicinity during construction. Although there would be an increase in vehicle trips on regional roads associated with construction related vehicles, it is not expected that, in the context of existing non-project-related traffic, the increased traffic would be noticed by the casual observer; therefore, the resulting visual effect would not be substantial.

Operation and Maintenance

An analysis of operation and maintenance effects for this alternative was conducted for the view areas represented by KOP 5 (Figure 3.19-3), which was selected for in-depth visual analysis because it provides a foreground view of Alternative B from Kaiser Road, the nearest public vantage point that also can be considered representative of views from the Lake Tamarisk residential development. None of the other seven representative KOPs would service both viewing populations (travelers on Kaiser Road and residents at Lake Tamarisk). The results of the impact analysis are discussed below and are presented in the Visual Analysis Summary table included as Appendix G-2. A contrast rating analysis was conducted at KOP 5 to determine the level of change that would be caused by implementation of this alternative and the alternative's consistency with the applicable VRM class management objectives. The Contrast Rating Data Sheet is provided in Appendix G-4.

KOP 5 – Kaiser Road in the Immediate Project Vicinity

Figure 4.19-5A presents the existing view to the northwest from KOP 5 on northbound Kaiser Road near the community of Lake Tamarisk. The view captures the open expanse of Chuckwalla Valley west of Kaiser Road. Figure 4.19-5B presents a visual simulation that depicts Alternative B, which would be situated in the immediate foreground within the primary cone of vision of both northbound and southbound travelers on Kaiser Road. As a result, travelers would be afforded extended viewing durations as the transmission line parallels the road. Given the close proximity and relatively large scale of the proposed facility, atmospheric conditions would have minimal to no effect on the viewing experience. Roadside vegetation would partially screen the more distant structures in the parallel view. Eventually, all structures would become visibly prominent as the structures pass into the immediate foreground of views.

As shown in the simulation, the Alternative B gen-tie line would result in the introduction of visually prominent built structures into a landscape generally lacking similar built features of industrial or technological character. The forms of the tubular steel poles and curvilinear conductors within the foreground exhibit strong contrast arising from the horizontal nature and natural character of the foreground, but the contrasting qualities begin to dissipate in the background against the distant Eagle Mountains. The prominent vertical lines of the poles also contrast with the general horizontal, diagonal, and irregular lines in the landscape associated with the valley floor, Kaiser Road, and background ridgelines. The resulting structural form and line contrast would be strong. The colors of the existing landscape are a blend of muted greens and tans for vegetation, tans for desert soils that transition to lavender and bluish hues at distance, and light to medium gray for the pavement of Kaiser Road. The light gray of the transmission structures would create a moderate contrast against the light blue sky and green vegetation and diminishes to a low degree of contrast against the distant middleground and background colors. The overall color contrast would be moderate. The smooth texture of the structures and indus-

trial surfaces would appear out of place in this rugged desert landscape resulting in weak-to-moderate texture contrast with the matte to granular textures of rock, soil, and vegetation. Also, the structures and conductors would cause partial view blockage of the Eagle Mountains and sky.

The Alternative B gen-tie line with its prominent linear, vertical, structural forms and lines and smooth industrial surfaces would not repeat the basic elements of the existing natural features in the landscape (horizontal, rugged and coarse valley floor punctuated with irregular distributions of vegetation clumps and individuals, backdropped by the jagged and angular Eagle Mountains. Also, the transmission line would constitute a foreground co-dominant to dominant feature in the landscape depending on proximity to the gen-tie line, thus attracting the attention of the casual observer. The prominence of the transmission structures would be accentuated by the skylining that would occur where structures visibly protrude above the horizon. Although the facilities would substantially degrade the existing visual character or quality of the surrounding landscape, the resulting high level of change would be allowed under the Interim VRM Class IV management objective (see the VRM Contrast Rating form for KOP 5 in Appendix G-4).

Although the resulting visual effect would be adverse and unmitigable when viewed from KOP 5 and other foreground locations along Kaiser Road (see discussion below under Section 4.19.16 CEQA Considerations), it is anticipated that the adverse visual effect could be somewhat reduced with the effective implementation of Mitigation Measures VR-3 (Project Design to Reduce Visual Contrast) and VR-4 (Surface Treatment).

Decommissioning

After the end of this alternative's useful life, it would require decommissioning with the intent of returning the ROW to pre-project conditions. However, as of the date of this visual analysis, no Decommissioning Plan has been prepared. Short-term, deconstruction activities would result in visual impacts similar to gen-tie construction. Longer-term, even the complete removal of the transmission structures would leave a very prominent visual effect throughout the entire ROW due to the strong color and line contrast created between disturbed soil areas and undisturbed soil and vegetated areas absent such unnatural lines of demarcation and color contrasts. In addition, revegetation in this desert region is difficult and generally of limited success. Therefore, visual recovery from land disturbance associated with closure and decommissioning activities would likely occur only over a very long period of time. However, Mitigation Measure VR-2 requires the project owner to achieve site restoration to the extent feasible, pursuant to a Decommissioning Plan approved by the BLM.

Mitigation Measures

Mitigation Measures VR-1 through VR-6 would also apply to Alternative B. The reader is referred to Section 4.19.6 for a complete description of these measures.

Residual Impacts and Unavoidable Adverse Effects

Land scarring and vegetation clearance. It is expected that even with effective implementation of Mitigation Measures VR-1 and VR-2, the residual impacts associated with land scarring and vegetation clearance would remain for several years given the difficulty of successful revegetation in an arid environment. This would result in an unavoidable, long-term, adverse effect to visual resources.

Structural visual contrast. It is expected that, given the scale of the transmission structures and the availability of considerable visual access to the project study area, even with effective implementation of Mitigation Measures VR-2, VR-3, VR-4, and VR-5, the residual impacts associated with introduced visual contrast from installation of the transmission structures would remain for the life of the project. This would result in an unavoidable, long-term adverse effect to visual resources.

Adverse effect on scenic vistas. It is expected that the transmission structures would result in adverse though not substantial visual effects on the elevated viewing perspectives from surrounding wilderness areas that overlook the northern Chuckwalla Valley given the substantial viewing distances to the transmission line. However, effective implementation of Mitigation Measures VR-2, VR-3, VR-4, and VR-5 is still required to reduce the visual effect to the extent feasible.

Inconsistency with public policy. Although the levels of change caused by the transmission structures would be allowed under the Interim VRM Class IV management objective, they would be inconsistent, after mitigation, with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1.

4.19.12 Alternative C – Separate Transmission Towers within Same ROW

Alternative C would parallel the approved Desert Sunlight Solar Farm gen-tie line and would be located on separate towers within the same, or a slightly larger, ROW. However, although the Desert Sunlight Solar Farm gen-tie has been approved, as of the commencement of analysis for this EIS, that gen-tie line has not been constructed. Therefore, the environmental baseline (affected environment) for Alternative C includes the existing physical state of the environment at the time of commencement of analysis (September, 2011), which does not include the Desert Sunlight Solar Farm gen-tie line.

Construction

Construction effects for this alternative would be the same as described for Alternative B above. The reader is referred to Section 4.19.11 for a discussion of construction effects.

Operation and Maintenance

Operation and maintenance effects for this alternative would be the same as described for Alternative B. The reader is referred to Section 4.19.11 for a discussion of operation and maintenance effects.

Decommissioning

Decommissioning effects for this alternative would be the same as described for Alternative B. The reader is referred to Section 4.19.11 for a discussion of decommissioning.

Mitigation Measures

Mitigation Measures VR-1 through VR-6 would also apply to Alternative C. The reader is referred to Section 4.19.6 for a complete description of these measures.

Residual Impacts and Unavoidable Adverse Effects

The residual impacts and unavoidable adverse effects of Alternative C would be the same as for Alternative B. The reader is referred to Section 4.19-11 for a complete discussion of these effects.

4.19.13 Alternative D – Cross-Valley Alignment

From the area of the solar facility, Alternative D would cross Chuckwalla Valley in a southeasterly direction before converging on and then spanning I-10 to connect to the proposed Red Bluff Substation (see Figure 3.19-1).

Construction

Construction effects for this alternative would be the same as described for Alternative B. The reader is referred to Section 4.19.11 for a discussion of construction effects.

Operation and Maintenance

An analysis of operation and maintenance effects for this alternative was conducted for the view areas represented by KOP 6 (Figure 3.19-3), which was selected for in-depth visual analysis because it is the only KOP of the eight representative KOPs that provides a foreground view of Alternative D from I-10, the most highly-traveled road in the project study area. The results of the impact analysis are discussed below and presented in the Visual Analysis Summary table included as Appendix G-2. A contrast rating analysis was conducted at KOP 6 to determine the level of change that would be caused by implementation of this alternative and the alternative's consistency with the applicable Interim VRM class management objectives. The Contrast Rating Data Sheet is provided in Appendix G-4.

KOP 6 – Eastbound I-10 East of Desert Center

Figure 4.19-6A presents the existing view to the northeast from KOP 6 on eastbound I-10, east of Desert Center and approximately 0.8 mile west of the Alternative D span of I-10. The view captures the open expanse of the northern Chuckwalla Valley north of I-10. Figure 4.19-6B presents a visual simulation that depicts Alternative D as it converges on I-10 and passes into the immediate foreground of views and within the primary cone of vision of both eastbound and westbound travelers on I-10. Given the openness of the terrain and the unobstructed sightlines, travelers would be afforded extended viewing durations as the gen-tie line converges on, and spans, the freeway. Given the close proximity and relatively large scale of the gen-tie line, atmospheric conditions would have minimal to no effect on the viewing experience in the vicinity of the span.

As shown in the simulation, this alternative would result in the introduction of visually prominent built structures into a landscape generally lacking similar built features of industrial or technological character. The form of the tubular steel poles and curvilinear conductors within the foreground exhibits strong contrast arising from the horizontal nature of the foreground/ middleground road corridor and valley floor. The prominent vertical lines of the poles also contrast with the general horizontal, diagonal, and irregular lines in the landscape associated with the valley floor, I-10, and background ridgelines. The resulting structural form and line contrast would be strong. The colors of the existing landscape are a blend of muted greens and tans for

vegetation, tans for desert soils that transition to lavender and bluish hues at distance, and light to medium gray for the pavement of I-10. The light gray of the transmission structures creates a weak-to-moderate contrast against the light blue sky, bluish hues of the background mountains, and green vegetation. The poles present a low degree of contrast compared to the foreground gray color of the freeway pavement. The overall color contrast would be weak-to-moderate. The smooth texture of the structures and industrial surfaces would appear out of place in this rugged desert landscape characterized by the matte to granular textures of rock, soil, and vegetation. The resulting texture contrast would also be weak-to-moderate. Also, the structures and conductors would cause partial view blockage of the Palen Mountains and sky. These contrasts would substantially degrade the existing visual character or quality of the surrounding landscape.

The transmission line with its prominent linear, vertical, structural forms and lines, and smooth industrial surfaces would not repeat the basic elements of the existing natural features in the landscape (horizontal, rugged, and coarse valley floor punctuated with irregular distributions of vegetation clumps and individuals, backdropped by the jagged and angular Palen Mountains). Also, the transmission line would constitute a foreground co-dominant to dominant feature in the landscape (depending on proximity to the transmission line), thus attracting the attention of the casual observer. The prominence of the proposed transmission structures would be accentuated by the skylining that would occur where structures visibly protrude above the horizon. However, the high level of change that would result would be allowed under the applicable Interim VRM Class IV management objective (see the VRM Contrast Rating form for KOP 6 in Appendix G-4).

Although the resulting visual effect would be adverse and unmitigable when viewed from KOP 6 and other foreground locations along I-10 (see discussion below under Section 4.19.16 CEQA Considerations), it is anticipated that the adverse visual effect could be somewhat reduced with the effective implementation of Mitigation Measures VR-3 (Project Design to Reduce Visual Contrast) and VR-4 (Surface Treatment).

Decommissioning

Decommissioning effects for this alternative would be the same as described for Alternative B. The reader is referred to Section 4.19.11 for a discussion of decommissioning.

Mitigation Measures

Mitigation Measures VR-1 through VR-6 would also apply to Alternative D. The reader is referred to Section 4.19.6 for a complete description of these measures.

Residual Impacts and Unavoidable Adverse Effects

The residual impacts and unavoidable adverse effects of Alternative D would be the same as for Alternative B. The reader is referred to Section 4.19.11 for a complete discussion of these effects.

4.19.14 Alternative E – New Cross-Valley Alignment

From the area of the solar facility, Alternative E would cross Chuckwalla Valley in a southeasterly direction north of the Alternative D alignment before converging on and then spanning I-10 to connect to the proposed Red Bluff Substation (see Figure 3.19-3).

Construction

Construction effects for this alternative would be the same as described for Alternative B. The reader is referred to Section 4.19.11 for a discussion of construction effects.

Operation and Maintenance

An analysis of operation and maintenance effects for this alternative was conducted for the view areas represented by KOP 7 and KOP 8 (Figure 3.19-3), which were selected for in-depth visual analysis because these are the only representative KOPs (of the eight total KOPs) that provide views of Alternative E from the two most highly traveled road corridors (SR-177 and I-10 respectively) in the project study area. The results of the effects analysis are discussed below and presented in the Visual Analysis Summary table included as Appendix G-2. Contrast rating analyses were conducted at KOP 7 and KOP 8 to determine the level of change that would be caused by implementation of this alternative and the alternative's consistency with the applicable Interim VRM class management objectives. The Contrast Rating Data Sheets are provided in Appendix G-4.

KOP 7 – Northbound SR-177

Figure 4.19-7A presents the existing view to the northeast from KOP 7 on northbound SR-177, approximately 0.3 mile southwest of the Alternative E span of SR-177. The view captures a central portion of the northern Chuckwalla Valley where it is bisected by Kaiser Road. The view is backdropped by the southeastern extent of the Coxcomb Mountains and the more distant Palen Mountains. Figure 4.19-7B presents a visual simulation that depicts the Alternative E gen-tie line as it converges on, and then spans, SR-177 passing into the immediate foreground of views and within the primary cone of vision of both northbound and southbound travelers on SR-177. Given the openness of the terrain and the unobstructed sightlines, travelers would be afforded extended viewing durations as the transmission line converges on and spans the road. Given the close proximity and relatively large scale of the proposed facility, atmospheric conditions would have minimal to no effect on the viewing experience in the vicinity of the span, though roadside vegetation would partially screen the more distant structures on either side of the span.

As shown in the simulation, this alternative would result in the introduction of visually prominent built structures into a landscape generally lacking structures of similar scale and industrial or technological character. The form of the tubular steel poles and curvilinear conductors within the foreground exhibits moderate-to-strong contrast arising from the horizontal nature of the foreground/middleground road corridor and valley floor. The prominent vertical lines of the poles also cause a moderate degree of contrast with the general horizontal, diagonal, and irregular lines in the landscape associated with the valley floor, SR-177, and background ridgelines. These form and line contrasts are somewhat moderated by the linear forms and vertical lines of an existing wood-pole utility line adjacent to SR-177. The colors of the existing landscape are a blend of muted greens and tans for vegetation, tans for desert soils that transition to lavender and bluish hues at distance, and light to medium gray for the pavement of SR-177. The light gray of the transmission structures creates a weak-to-moderate contrast against the light blue sky, bluish hues of the background mountains, and green vegetation. The poles present a weak degree of contrast compared to the foreground gray color of the road pavement. The overall color contrast would be weak to moderate. The smooth texture of the structures and industrial surfaces would appear out of place in this rugged desert landscape characterized by the matte to granular

textures of rock, soil, and vegetation. The resulting texture contrast would also be weak-to-moderate. Also, the structures and conductors would cause partial view blockage of the Coxcomb and Palen mountains and sky. These contrasts would substantially degrade the existing visual character or quality of the surrounding landscape.

Alternative E with its prominent linear, vertical, structural forms and lines, and smooth industrial surfaces would not repeat the basic elements of the existing natural features in the landscape (horizontal, rugged and coarse valley floor supporting irregular distributions of vegetation clumps and individuals, backdropped by the somewhat horizontal, yet, jagged and angular to rolling Coxcomb and Palen mountains). Also, the gen-tie line would constitute a foreground co-dominant to dominant feature in the landscape (depending on proximity to the line), thus attracting the attention of the casual observer. The prominence of the transmission structures would be accentuated by the skylining that would occur where structures visibly protrude above the horizon. Further, given the openness of the terrain and lack of substantial vegetation, the convergence on, and span of, SR-177 would be visible from considerable distance along SR-177 in both directions of travel. Thus, numerous transmission structures would be collectively visible within the primary cone of vision of travelers on SR-177 for an extended duration, which would contribute to the overall apparent prominence of this alternative as it passes through the viewshed visible from SR-177. However, the moderate-to-high level of change that would result would be allowed under the Interim VRM Class IV management objective (see the VRM Contrast Rating form for KOP 7 in Appendix G-4).

Although the resulting visual effect would be adverse and unmitigable when viewed from KOP 7 and other foreground locations along SR-177 (see discussion below under Section 4.19.16 CEQA Considerations), it is anticipated that the adverse visual effect could be somewhat reduced with the effective implementation of Mitigation Measures VR-3 (Project Design to Reduce Visual Contrast) and VR-4 (Surface Treatment).

This viewpoint analysis is also applicable to the southern-most portion of the Desert Lily Sanctuary ACEC, which is located in close proximity to, and north of, the Alternative E alignment east of SR-177 (see Figure 3.19-1).

KOP 8 – Westbound I-10 East of Desert Center

Figure 4.19-8A presents the existing view to the north from KOP 8 on westbound I-10 north of the proposed Red Bluff Substation site, approximately 5.75 miles east of Desert Center and approximately 0.2 mile east of the Alternative E span of I-10. The view captures a central portion of the generally natural appearing northern Chuckwalla Valley north of I-10 and backdropped by the Coxcomb Mountains. Figure 4.19-8B presents a visual simulation that depicts the Alternative E gen-tie line as it crosses Chuckwalla Valley in a circuitous path before converging on, and then spanning, I-10. As the transmission line converges on I-10, it passes into the immediate foreground of views and within the primary cone of vision of both eastbound and westbound travelers on I-10. However, due to the west-northwest orientation of the direction of travel on westbound I-10, a majority of the transmission line route would be located within the primary cone of vision of westbound travelers. Given the openness of the terrain and the unobstructed sightlines, travelers would be afforded extended viewing durations (particularly westbound travelers) as the transmission line traverses a central portion of Chuckwalla Valley in a circuitous path and then converges on and spans the highway. Given the close proximity and

relatively large scale of the proposed facility, the impairment of structure visibility due to adverse atmospheric conditions (e.g., haze) would be limited to only the most distant structures.

As shown in the simulation, this alternative would result in the introduction of numerous visually noticeable, prominent built structures into a landscape generally lacking similar built features of industrial or technological character. The forms of the tubular steel poles and curvilinear conductors within the foreground exhibits moderate-to-strong contrast arising from the horizontal nature of the foreground/middleground valley floor. The prominent vertical lines of the poles also contrast with the general horizontal and irregular lines in the landscape associated with the valley floor and background ridgelines. The resulting structural form and line contrasts would be moderate-to-strong, which would increase with closer proximity to the viewer and diminish with increasing distance from the viewer. The colors of the existing landscape are a blend of greens and tans for vegetation and tans for desert soils, that transition to lavender and bluish hues at distance. The light gray of the transmission structures creates a weak-to-moderate contrast against the light blue sky, bluish hues of the background mountains, and green vegetation. The smooth texture of the structures and industrial surfaces would appear out of place in this rugged desert landscape characterized by the matte to granular textures of rock, soil, and vegetation. However, with the greater viewing distances presented in the simulation, the resulting texture contrast would be weak. Also, the structures and conductors would cause partial view blockage of the background Chuckwalla Valley floor, Coxcomb Mountains, and sky. These contrasts would substantially degrade the existing visual character or quality of the surrounding landscape.

The transmission line with its prominent linear-vertical and curvilinear structural forms and lines would not repeat the basic elements of the existing natural features in the landscape (horizontal, rugged, and coarse valley floor supporting irregular distributions of vegetation clumps and individuals, and backdropped by the jagged and angular Coxcomb Mountains). Also, the gen-tie line would constitute a foreground co-dominant to dominant feature in the landscape (depending on proximity to the line — the closer the viewer to the span of I-10, the more prominent the line becomes), thus attracting the attention of the casual observer. The prominence of the transmission structures would be accentuated by the skylining that would occur where structures visibly protrude above the horizon, which would be particularly noticeable on closer approach to the I-10 span. However, the moderate-to-high level of change that would result would be allowed under the applicable Interim VRM Class IV management objective (see the VRM Contrast Rating form for KOP 8 in Appendix G-4).

Although the resulting visual effect would be adverse and unmitigable when viewed from KOP 8 and other foreground locations along I-10 (see discussion below under Section 4.19.16 CEQA Considerations), it is anticipated that the adverse visual effect could be somewhat reduced with the effective implementation of Mitigation Measures VR-3 (Project Design to Reduce Visual Contrast) and VR-4 (Surface Treatment).

Decommissioning

Decommissioning effects for this alternative would be the same as described for Alternative B. The reader is referred to Section 4.19.11 for a discussion of decommissioning.

Mitigation Measures

Mitigation Measures VR-1 through VR-6 would also apply to Alternative E. The reader is referred to Section 4.19.6 for a complete description of these measures.

Residual Impacts and Unavoidable Adverse Effects

The residual impacts and unavoidable adverse effects of Alternative E would be the same as for Alternative B. The reader is referred to Section 4.19-11 for a complete discussion of these effects.

4.19.15 Cumulative Effects

Cumulative effects to visual resources would occur where DHSP facilities or activities would occupy the same field of view as other built facilities or impacted landscapes, and an adverse change in the visible landscape character is perceived. These are often categorized as local viewshed effects. A cumulative effect could also occur if a viewer perceives that the general visual quality or landscape character of a localized or regional area (I-10 corridor) is diminished by the proliferation of visible similar structures or construction effects, even if the changes are not within the same field of view as existing (or future) structures or facilities. The result is a perceived "industrialization" or "urbanization" of the existing rural or undeveloped landscape character. These are often categorized as regional viewshed effects.

There is the potential for substantial future development along the I-10 corridor between the Coachella Valley and Blythe. A list of the existing and reasonably foreseeable cumulative projects is provided in Tables 4.1-1 and 4.1-2 and shown on Figures 4.1-1. A subset consisting of 26 of those projects would combine with DHSP to cause both local and regional viewshed cumulative effects. Those cumulative projects are identified in Table 4.19-1.

Geographic Scope

Cumulative effects to visual resources could occur if implementation of the DHSP would combine with those of other local or regional projects. DHSP is potentially associated with two types of cumulative effects:

- **Local cumulative effects** within the immediate project viewshed (local projects typically within 15 miles of DHSP) including existing and reasonably foreseeable future projects in the northern Chuckwalla Valley; and
- **Regional cumulative effects** beyond the immediate project viewshed, which would include the existing and reasonably foreseeable future solar and other energy and development projects along the I-10 corridor between the Coachella Valley and Blythe. These projects, while not located within the same field of view as DHSP would, in combination with DHSP, contribute to a sense of industrialization or urbanization of the existing landscape character as viewed by travelers along I-10.

Table 4.19-1 Visual Resources Cumulative Projects

Existing Projects			
Local Viewshed Cumulative Projects		Regional Viewshed Cumulative Projects	
#	Name	#	Name
1	Interstate 10	5	Blythe Energy Project
4	Devers-Palo Verde No. 1 500 kV T-Line	11	Blythe PV Project
7	Eagle Mountain Pumping Plant		
9	Kaiser Mine		
10	Blythe Energy Project T-Line		
12	Chuckwalla Valley Raceway		
Reasonably Foreseeable Projects			
Local Viewshed Cumulative Projects		Regional Viewshed Cumulative Projects	
#	Name	#	Name
D	Devers-Palo Verde No. 2 500 kV T-Line	G	Blythe Energy Project II
F	Desert Southwest T-Line	J	Blythe Solar Power Project
H	Eagle Mountain Pumped Storage Project	K	NextEra (FPL) McCoy Solar Project
I	Palen Solar Energy Project	M	Genesis Solar Energy Project
R	Desert Sunlight Solar Project	P	Blythe Airport Solar I Project
S	SCE Red Bluff Substation	Y	Wiley's Well Telecom Tower
T	Desert Center 50 Solar Project	HH	BLM Solar Energy Zones
U	Sol Orchard Solar Project		
X	Eagle Mountain Landfill Project		
Z	Eagle Mountain Wind Project Met Towers		
CC	Silverado Power I, II, III		

Cumulative Effects Analysis

There would be no cumulative visual resources effects under the No Action or No Project Alternatives (Alternatives 1, 3, or A) because there would be no ROW grant for development of the solar facility and gen-tie line. Alternative 2: No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development) could contribute to cumulative visual resources effects because the CDCA Plan could be amended to allow another solar development of the site. However, any future proposals for use of the DHSP site would be subject to separate environmental analysis, and the potential contribution of such a future project is speculative at this juncture. The remainder of this section addresses the Action Alternatives: Alternatives 4, 5, 6, and 7 and gen-tie alignment Alternatives B through E.

Existing Cumulative Projects

This section identifies the existing projects and actions that have affected and will continue to affect landscape character in the local and regional cumulative study areas described above. There has been relatively limited development and/or industrialization of the landscape within the DHSP's viewshed (extending out approximately 15 miles to the limit of the background distance zone). Table 4.19-1 above identifies six existing cumulative projects within a reasonable

viewing distance of DHSP (locally cumulative projects) including project numbers 1, 4, 7, 9, 10, and 12 (map identification numbers on Figure 4.1-1).

All of the projects share at least one visual characteristic with DHSP. I-10 appears as a long, linear, horizontal feature covering the valley floor. The solar facility action alternatives would also appear as a low, horizontal, linear feature covering the valley floor when viewed at distance. The Devers-Palo Verde No. 1 and Blythe Energy Project transmission lines would share similar industrial character and vertical linear forms with the DHSP gen-tie line. The Eagle Mountain Pumping Plant will share some of the complex industrial characteristics as would be apparent with the solar facility and substation. The Kaiser Mine and Chuckwalla Valley Raceway both exhibit ground disturbance and scarring that would result in visual contrast similar to what would be apparent with implementation of DHSP. All of these projects would be visible within the same field of view as DHSP when viewed from a variety of viewpoints. All of these projects, in conjunction with DHSP, contribute to the conversion of natural desert landscapes to landscapes that substantially contrast with the natural character of the desert landscape (complex industrial and/or geometric forms and lines, and surface textures and colors that are not apparent in natural, undisturbed desert landscapes). Therefore, there would be combined effects on visual resources from the combination of DHSP and the six locally cumulative projects, both individually (each project plus DHSP) and collectively (all six projects).

Additionally, the two existing regionally cumulative energy generation projects (#5 – Blythe Energy Project and #11 – Blythe PV Project) near the City of Blythe also contribute to a cumulative sense of urbanization and industrialization along the I-10 corridor. Therefore, DHSP in conjunction with these two existing projects, individually and collectively, would contribute to cumulative effects on the visual resources and landscapes along the I-10 corridor.

The exception would be Alternative B, which would not contribute to cumulative visual effects as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Finally, Alternative C would have a slightly larger adverse cumulative effect in the vicinity of Desert Center, Kaiser Road, and Lake Tamarisk compared to Alternatives D and E. This is because Alternative C would site a gen-tie line directly adjacent to the Desert Sunlight approved gen-tie, and both projects would be present in the same ROW in the cumulative scenario. Multiple gen-tie lines in a single ROW would contribute to a slightly larger sense of industrialization in the immediate viewshed of Alternative C.

Reasonably Foreseeable Cumulative Projects

This section identifies the reasonably foreseeable projects and actions that would affect landscape character in the local and regional cumulative study areas described above.

Local Foreseeable Cumulative Projects

Operation and Maintenance Impacts. Table 4.19-1 above identifies 11 foreseeable local cumulative projects within a reasonable viewing distance of DHSP including project letters: D, F, H, I, R, S, T, U, X, Z, and CC (map identification letters on Figure 4.1-1). Of the 11 local projects, 10 are energy projects and one is a landfill project. Most of these projects have either undergone independent environmental review pursuant to NEPA and/or CEQA or will do so prior to

approval. Even if environmental review has not been completed for the cumulative projects described in Table 4.19-1, their effects were considered in the cumulative effects analyses in this EIS.

The 10 local foreseeable cumulative energy projects would all exhibit similar complex industrial characteristics, structural visual contrast (form, line, color, and texture), structural prominence, night lighting, and view blockage of existing landscape features comparable to DHSP (though there would be some differences depending on the type of project and viewing location). Figures 4.19-2A, 4.19-2B, and 4.19-2C are examples to show the cumulative effect of the DHSP and the Desert Sunlight Solar Farm project, which is the closest cumulative project and is located immediately adjacent and to the north of DHSP. Figure 4.19-2A presents the existing view of the northern Chuckwalla Valley from KOP 2 on the western flank of the Coxcomb Mountains. This elevated viewpoint provides an elevated perspective of the valley north of I-10. Figure 4.19-2B presents a simulation of Alternative 4, which is located approximately 3.5 miles to the southwest. The solar panel arrays are shown facing (tilted) to the south, away from the viewer at KOP 2, and would appear as a spatially prominent and central series of geometric patterns on the basin floor, which would contrast with the predominantly natural appearance of the northern Chuckwalla Valley landscape. Figure 4.19-2C presents a cumulative simulation of Alternative 4 with the Desert Sunlight solar project, at a viewing distance of 2.5 to 3.5 miles to the southwest. Again, the view is toward the back of the solar fields with the solar panels facing toward the south, away from the KOP 2 viewing location. As shown in the simulation, from the viewing angle and higher elevation of KOP 2, DHSP would noticeably expand the solar development area begun by the Desert Sunlight solar project and the cumulative visual effect of the two projects would be substantially greater with a larger portion of the valley being converted from a natural desert valley landscape to that of an industrial energy complex. At this viewing distance, the two projects would appear as a spatially prominent series of geometric patterns that do not replicate the form, line, color, or texture of the existing desert landscape.

Appendix G5 also presents a time-lapse visual simulation of both DHSP and the Desert Sunlight solar project (to the left in the simulation) as viewed from KOP 9 in Joshua Tree Wilderness, approximately five miles to the west of the project site. Again, as shown in the simulation from KOP 9, while the two projects in combination would noticeably expand the solar development area begun by the Desert Sunlight solar project, resulting in a substantial cumulative visual effect, there are essentially no visual effects (glare or glint) off the tracking panels that either increase the prominence of DHSP or distinguish it from the immediately adjacent Desert Sunlight solar project, and most observers from this viewing location would perceive the two projects as a single development.

The cumulative visual impact of DHSP and all 10 of the energy projects would be considerably greater (in terms of visual contrast, industrial character, structural prominence, and view blockage) than the cumulative visual impact of just DHSP and Desert Sunlight as described earlier in this paragraph.

The landfill project would exhibit substantial visual contrast associated with land modification and scarring and the associated color contrast of disturbed soils relative to the surrounding terrain characteristics. The landfill project would also exhibit some similar industrial characteristics compared to DHSP and the 10 cumulative energy projects.

These 11 projects and DHSP, individually and collectively, would visually transform a substantial portion of the greater Chuckwalla Valley (see Figure 4.1-1) by contributing to the conversion of natural desert landscapes to landscapes with substantial industrial, technological, and modified land characteristics. The resulting visual effects would be cumulatively adverse.

The exception would be Alternative B, which would not contribute to cumulative visual effects as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Finally, Alternative C would have a slightly larger adverse cumulative effect in the vicinity of Desert Center, Kaiser Road, and Lake Tamarisk compared to Alternatives D and E. This is because Alternative C would site a gen-tie line directly adjacent to the Desert Sunlight approved gen-tie, and both projects would be present in the same ROW in the cumulative scenario. Multiple gen-tie lines in a single ROW would contribute to a slightly larger sense of industrialization in the immediate viewshed of Alternative C. Figure 4.19-5C shows a cumulative effects simulation of Alternative C and the Desert Sunlight Solar Farm approved gen-tie in the same ROW along Kaiser Road.

Construction Impacts. If construction at any or all of the 11 local foreseeable cumulative project locations were to occur at the same time as, or consecutively before or after, construction of DHSP, construction activities, equipment and night lighting from these sites would combine with similar activities and equipment from the DHSP site. Construction of DHSP and the other cumulative projects in the vicinity would lead to the continued presence of construction equipment on roads and in the landscape in the local project region for several years and cause a cumulatively adverse. The exception would be Alternative B, which would not contribute to cumulative visual effects as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Regional Foreseeable Cumulative Projects

Operation and Maintenance Impacts. Table 4.19-1 above identifies seven foreseeable regional cumulative projects including six energy projects (G, J, K, M, P, and HH – map identification letters on Figure 4.1-1) and one telecommunications tower project (Y) located beyond the immediate viewshed of DHSP. These projects would all exhibit similar complex industrial characteristics, structural visual contrast (form, line, color, and texture), structural prominence, and view blockage of existing landscape features comparable to components of DHSP (though there would be some differences depending on the type of project and viewing location). These seven foreseeable regional cumulative projects and DHSP, individually and collectively, would visually transform a substantial portion of the I-10 corridor landscape by contributing to the conversion of natural desert landscapes to landscapes with prominent industrial character, prominent complex and geometric forms and lines, and surface colors and textures not typically found in a natural desert landscape. All of these projects would also typically cause land scarring and soil disturbance that result in long-term soil color contrasts and unnatural vegetative lines. New structures would cause view blockage or impairment of higher quality background features (valley floor, mountain ridges, and sky). As a result, DHSP and the regional cumulative projects

combined would result in a **perceived** increase in industrialization of the landscape, diminution of visual quality, and increase in visual contrast visible in the I-10 corridor between the Coachella Valley and Blythe even though the regional cumulative projects would not be visible in the same field of view as DHSP. The resulting visual impact would be cumulatively adverse.

The exception would be Alternative B, which would not contribute to cumulative visual effects as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Finally, Alternative C would have a slightly larger adverse cumulative effect in the vicinity of Desert Center, Kaiser Road, and Lake Tamarisk compared to Alternatives D and E. This is because Alternative C would site a gen-tie line directly adjacent to the Desert Sunlight approved gen-tie, and both projects would be present in the same ROW in the cumulative scenario. Multiple gen-tie lines in a single ROW would contribute to a slightly larger sense of industrialization in the immediate viewshed of Alternative C. Figure 4.19-5C shows a cumulative effects simulation of Alternative C and the Desert Sunlight Solar Farm approved gen-tie in the same ROW along Kaiser Road.

Construction Impacts. If construction at any or all of the seven foreseeable regional cumulative project locations were to occur at the same time as, or consecutively before or after, construction of DHSP, construction activities, equipment and night lighting from these sites would combine with similar activities and equipment from the DHSP site. Construction of DHSP and the other regional cumulative projects would lead to the continued presence of construction equipment on roads and in the landscape in the I-10 corridor for several years and cause a cumulatively adverse visual effect.

The exception would be Alternative B, which would not contribute to cumulative visual effects as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Decommissioning

Cumulative effects associated with decommissioning of DHSP would include the removal and disposal of solar arrays, transmission structures, other electrical components, and ancillary facilities, as well as the removal of all underground infrastructure to three feet below the ground surface. Short-term, deconstruction activities would result in visual impacts similar to project construction. Restoration of the DHSP site would include returning the area as close as reasonably possible to pre-construction conditions suitable for current adjacent land. However, following removal of the facilities, strong color contrasts associated with vegetation removal and disturbed soils would remain. In addition, revegetation in a desert region is difficult and generally is of limited success. Therefore, visual recovery from land disturbance associated with closure and decommissioning activities would likely occur only over a very long period of time. Mitigation Measure VR-2 requires the project owner to achieve site restoration to the extent feasible for the DHSP, pursuant to a Decommissioning Plan approved by the BLM. It is anticipated that other reasonably foreseeable future projects would be subject to such requirements.

4.19.16 CEQA Considerations

This section is included in this EIS and Draft Plan Amendment for future use by CEQA Lead and Responsible agencies and is not required under NEPA.

CEQA Significance Criteria

The criteria used to assess the significance of visual impacts resulting from a project take into consideration the factors described in the previous section, as well as federal, state, and local policies and guidelines pertaining to visual resources. Appendix G of the CEQA Guidelines identifies four circumstances that can lead to a determination of significant visual impact. These have been adapted as set forth below for the analysis that follows.

V-1 Project construction or the long-term presence of Project components would cause a substantial effect on a scenic vista.

V-2 Project construction or the long-term presence of Project components would substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within view of a State Scenic Highway.

V-3 Project construction or the long-term presence of Project components would substantially degrade the existing visual character or quality of the site and its surrounding landscape. [Note: Substantial degradation results from higher levels of visual contrast, project dominance, and view blockage. Visual contrast relates to spatial characteristics, visual scale, texture, form, line, and color.]

V-4 Project construction or the long-term presence of a project would create a new source of substantial light or glare that would adversely affect day or nighttime views in the area or be hazardous to motorists or pedestrians.

Three additional criteria that can lead to a determination of significant visual impact include the following.

V-5 The presence of DHSP would result in a long-term (greater than five years) inconsistency with established (or interim) BLM VRM class objectives (applies only to public lands administered by the BLM). This would typically occur where a landscape with a relatively high visual quality and viewer concern is noticeably altered.

V-6 Construction of DHSP or the presence of Project components would result in an inconsistency with local regulations, plans, and standards applicable to the protection of visual resources.

V-7 The presence of DHSP would add to a cumulative visual alteration.

CEQA Significance Determination

This analysis considered the potential impacts of the proposed project and alternatives in relation to the four significance criteria for visual resource impacts listed in Appendix G of the CEQA guidelines (Impact Criteria V-1 through V-4), under Aesthetics, and the three additional criteria (Impact Criteria V-5 through V-7) presented in the previous subsection.

Alternative 1

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and the BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site, and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended. Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition with no new structures or facilities constructed or operated on the site and no ground disturbance. As a result, impacts to visual resources would not occur. Since no visual impacts would result from this alternative, there would be no contribution to cumulative impacts.

Alternative 2

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. With such an amendment, a similar solar project could be proposed on the project site. Project impacts associated with such a future project would be analyzed at the time a project is proposed through submission of a ROW application and are not considered to result from approval of the No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development). As a result, the DHSP would not be constructed on the project site, and no visual impacts from the DHSP would occur. Since no visual impacts would result from this alternative, there would be no contribution to cumulative impacts.

Alternative 3

Under Alternative 3, the proposed DHSP would not be approved (all components of the project denied), no ROW grant would be issued to the Applicant, and the BLM would amend the CDCA Plan to find the site unsuitable and unavailable for large-scale solar development. This alternative would not place a special designation or level of protection on the project site. If the project study area were not available for large-scale solar development, it would remain available for other types of uses allowable on BLM land. This may include mining, recreation, utilities, and other energy development allowed on lands classified as Multiple Use Class M (Moderate Use), which constitutes most of the project locations, and lower-intensity uses in the areas designated as Multiple Use Class L (Limited Use). As a result, the DHSP would not be constructed on the project site, and no visual impacts from the DHSP would occur. Since no visual impacts would result from this alternative, there would be no contribution to cumulative impacts.

Alternative 4

Impact Criterion V-1. Although no designated scenic vistas were identified in the study area, panoramic and highly scenic vistas are available to backcountry recreationists that access the Joshua Tree Wilderness and Chuckwalla Mountains Wilderness. As shown in Figure 4.19-2A and 2B for the representative KOP 2, the solar facility would be prominently visible from elevated vantagepoints in the area, and the introduction of industrial character and structural visual contrast would result in substantial adverse effects on these views. The resulting visual impact would be significant and unavoidable. However, Mitigation Measures VR-1 through VR-4 are still required to reduce the visual impact to the extent feasible.

Impact Criterion V-2. There are no State Scenic Highways in the immediate project vicinity, so significant visual impacts would not occur under this criterion.

Impact Criterion V-3. As discussed in Section 4.19.6 of this analysis, Alternative 4 would introduce a prominent built facility with considerable industrial character into an existing landscape presently absent such features, causing a substantial degradation of the existing visual character or quality of the site and its surrounding landscape when viewed from the elevated viewpoints in the wilderness areas as demonstrated for KOP 2 and from I-10. The resulting visual impacts would be significant and unavoidable. However, close-proximity, at-grade views of the solar farm (from Kaiser Road, the Lake Tamarisk Community, and SR-177) would be significant but could be mitigated to levels that would be less than significant if a vegetative screening buffer of sufficient width (a minimum of 200 feet) is maintained between the viewing locations and the proposed project facilities (MM VR-5). More distant at-grade views, such as those at KOP 1 and KOP 4 would not experience substantial degradation of the existing visual character or quality of the landscape because of the apparent small scale of the proposed project elements at those considerable viewing distances (KOP 1) and/or the presence of intervening screening vegetation (KOP 4). The resulting visual impact in those circumstances would be adverse but less than significant. Views of the project from linear viewpoints including Kaiser Road, SR-177, and I-10 would experience a range of visual impact. Road segments and travel directions labeled in red or orange in Figure 3.19-2 would typically experience significant visual impacts. In some cases, the impact might be mitigable if the strategic planting of sufficient intervening vegetation to intersect sightlines to the project were feasible. Road segments and travel directions labeled in yellow and green in Figure 3.19-2 would experience less than significant or no visual impacts, depending on the presence of intervening screening, typically by vegetation or structures. Mitigation Measures VR-1 through VR-5 are required to reduce visual impacts to the extent feasible.

Impact Criterion V-4. Joshua Tree National Park is known throughout the National Park System for its significant Dark Sky resource. To serve a substantial public interest in Dark Sky observation, Joshua Tree National Park offers a variety of Night Sky Programs. In the immediate Project region, Dark Sky visitors access the east end of the Pinto Basin at the access gate adjacent to KOP 1. Because any light source in the desert contributes to ambient light pollution and all light sources are adversely cumulative in terms of the impact on human dark adaptation and the dwindling availability of Dark Sky observation areas, it is essential that substantial steps be taken to ensure that additional night sky light pollution does not occur from implementation of DHSP. Alternative 4 has the potential to introduce a new source of substantial light that would adversely affect nighttime views in the area. The resulting visual impact would be significant, but it is mitigable to a less than significant level with strict and effective implementation of Mitigation Measure VR-6 (Night Lighting Control).

Impact Criterion V-5. The low-to-high degrees of visual change that would be caused by Alternative 4 would be allowed under the applicable Interim VRM Class IV management objective. The Class IV management objective provides for:

> *"….management activities that require major modification of the landscape character. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities*

> *through careful location, minimal disturbance, and repetition of the basic landscape elements."*

Therefore, the resulting visual impact would be less than significant under this criterion. However, Mitigation Measures VR-1 through VR-6 are required to reduce visual impacts to the extent feasible.

Impact Criterion V-6. The moderate-to-high degree of visual change that would be caused by the proposed solar facility would not be consistent with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1. These policy inconsistencies would result in a significant and unavoidable, long-term adverse impact to visual resources. However, Mitigation Measures VR-1 through VR-6 are required to reduce visual impacts to the extent feasible.

Impact Criterion V-7. As discussed in Section 4.19.15 the presence of Alternative 4 would substantially add to a cumulative visual alteration. The resulting cumulative visual impact would be significant and unavoidable. However, Mitigation Measures VR-1 through VR-6 are required to reduce visual impacts to the extent feasible.

Cumulative impacts are described for Alternative 4 in Section 4.19.15. From a CEQA perspective, Alternative 4 would combine with other past, present, and reasonably foreseeable projects in the project study area to result in a cumulatively significant impact. Alternative 4's contribution to this cumulative impact would be considerable.

Alternative 5

The impact significance determinations for Alternative 5 would be the same as for Alternative 4.

Alternative 6

The impact significance determinations for Alternative 6 would be the same as for Alternative 4 but impacts to viewers on Kaiser Road would be reduced.

Alternative 7

Impact Criterion V-1. Although no designated scenic vistas were identified in the study area, panoramic and highly scenic vistas are available to backcountry recreationists that access the Joshua Tree Wilderness and Chuckwalla Mountains Wilderness. As shown in Figure 4.19-2A and 2B for the representative KOP 2, the Proposed project would be prominently visible from elevated vantagepoints in the area, and the introduction of industrial character and structural visual contrast would result in substantial adverse effects on these views. The resulting visual impact would be significant and unavoidable. This conclusion would also apply to Alternative 7 because Alternative 7 would appear very similar to the Proposed project at this viewing distance. However, Mitigation Measures VR-1 through VR-4 are still required to reduce the visual impact to the extent feasible.

Impact Criterion V-2. There are no State Scenic Highways in the immediate Project vicinity, so significant visual impacts would not occur under this criterion.

Impact Criterion V-3. As discussed in Section 4.19.9 of this analysis, Alternative 7, with its high-profile solar panels, would introduce a prominent built facility with considerable industrial

character into an existing landscape presently absent such features, causing a substantial degradation of the existing visual character or quality of the site and its surrounding landscape when viewed from the elevated viewpoints in the wilderness areas as demonstrated for KOP 2, from close-proximity, at-grade views along Kaiser Road as demonstrated by KOP 3A, and from I-10 as demonstrated by KOP 8A. The resulting visual impacts would be significant and unavoidable. Unlike the Proposed project with its low-profile solar panels, it is unlikely that the high-profile solar panels of Alternative 7 could be sufficiently screened by roadside and intervening vegetation to reduce the visual impact to a level that would be less than significant. However, it is still required that a vegetative screening buffer of sufficient width (a minimum of 200 feet) be maintained between the viewing locations and the proposed project facilities (MM VR-5). More distant at-grade views, such as those at KOP 1 and KOP 4 would not experience substantial degradation of the existing visual character or quality of the landscape because of the apparent small scale of the proposed project elements at those considerable viewing distances (KOP 1) and/or the presence of intervening screening vegetation (KOP 4). The resulting visual impact in those circumstances would be adverse but less than significant. Views of the proposed project from linear viewpoints including Kaiser Road, SR-177, and I-10 would experience a range of visual impact. Road segments and travel directions labeled in red or orange in Figure 3.19-2 would typically experience significant visual impacts. In some cases, the impact might be mitigable if the strategic planting of sufficient intervening vegetation to intersect sightlines to the proposed project were feasible. Road segments and travel directions labeled in yellow and green in Figure 3.19-2 would experience less than significant or no visual impacts, depending on the presence of intervening screening, typically by vegetation or structures. Mitigation Measures VR-1 through VR-5 are required to reduce visual impacts to the extent feasible.

Impact Criterion V-4. Joshua Tree National Park is known for throughout the National Park System for its significant Dark Sky resource. To serve a substantial public interest in Dark Sky observation, Joshua Tree National Park offers a variety of Night Sky Programs. In the immediate Project region, Dark Sky visitors access the east end of the Pinto Basin at the access gate adjacent to KOP 1. Because any light source in the desert contributes to ambient light pollution and all light sources are adversely cumulative in terms of the impact on human dark adaptation and the dwindling availability of Dark Sky observation areas, it is essential that substantial steps be taken to ensure that additional night sky light pollution does not occur from implementation of DHSP. Alternative 7 has the potential to introduce a new source of substantial light that would adversely affect nighttime views in the area. The resulting visual impact would be significant, but it is mitigable to a less than significant level with strict and effective implementation of Mitigation Measure VR-6 (Night Lighting Control).

Impact Criterion V-5. The low-to-high degrees of visual change that would be caused by Alternative 7 would be allowed under the applicable Interim VRM Class IV management objective. The Class IV management objective provides for:

> *"….management activities that require major modification of the landscape character. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repetition of the basic landscape elements."*

Therefore, the resulting visual impact would be less than significant under this criterion. However, Mitigation Measures VR-1 through VR-6 are required to reduce visual impacts to the extent feasible.

Impact Criterion V-6. The moderate-to-high degree of visual change that would be caused by Alternative 7 would not be consistent with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1. These policy inconsistencies would result in a significant and unavoidable, long-term adverse impact to visual resources. However, Mitigation Measures VR-1 through VR-6 are required to reduce visual impacts to the extent feasible.

Impact Criterion V-7. As discussed in Section 4.19.15 the presence of Alternative 7 (similar to the Proposed project) would substantially add to a cumulative visual alteration. The presence of DHSP would constitute a cumulatively considerable contribution to a significant cumulative visual impact.

Cumulative impacts would be the same for Alternative 7 as Alternative 4.

Alternative A

The impact significance determinations for Alternative A would be the same as for Alternative 1.

Alternative B

Impact Criterion V-1. The proposed transmission line is not anticipated to result in significant visual impacts under Impact Criterion V-1 given the extended viewing distances (more than miles) to potential scenic vista locations in the surrounding wilderness areas. Even though the resulting visual impact would be adverse but less than significant, Mitigation Measures VR-1 through VR-4 are still required to reduce likely visual impacts to the extent possible.

Impact Criterion V-2. There are no State Scenic Highways in the immediate Project vicinity, so significant visual impacts would not occur under this criterion.

Impact Criterion V-3. As discussed in Section 4.19.6 of this analysis, the proposed transmission line would introduce prominent built structures with considerable industrial character into an existing landscape generally absent such features causing a substantial degradation of the existing visual character or quality of the site and its surrounding landscape when viewed from foreground/middleground, at grade viewpoints including Kaiser Road and the Lake Tamarisk residential development (KOP 5), adjacent BLM lands, and I-10. The resulting visual impacts under this criterion would be significant and unavoidable. Views of the gen-tie transmission line from linear viewpoints including Kaiser Road, SR-177, and I-10 could experience a range of visual impact, though typically, given the large scale of the transmission structures and the open valley landscape, the close proximity view opportunities would experience significant and unavoidable visual impacts, and the more distant viewing opportunities would likely experience adverse but less than significant visual impacts. Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

Impact Criterion V-4. The proposed transmission line is not anticipated to result in significant visual impacts under Impact Criterion V-4 since the facility would not be a source of significant

light. The impact resulting from the FAA-required lighting on top of structures would be adverse but less than significant.

Impact Criterion V-5. The high degree of visual change that would be caused by the proposed transmission line (as viewed from Kaiser Road, the Lake Tamarisk residential community, adjacent BLM lands, and I-10) would be allowed under the applicable Interim VRM Class IV management objective. Therefore, the resulting visual impact would be less than significant under this criterion. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

Impact Criterion V-6. The high degree of visual change that would be caused by the proposed transmission line would not be consistent with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1. These policy inconsistencies would result in a significant and unavoidable, long-term adverse impact to visual resources. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

Impact Criterion V-7. As discussed in Section 4.19.15, the presence of the proposed transmission line would substantially add to a cumulative visual alteration. The resulting cumulative visual impact would be significant and unavoidable. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

Alternative B would not contribute to cumulative impacts as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

Alternative C

The impact criteria conclusions for Alternative C would be the same as described for Alternative B, with the exception of cumulative impacts. Alternative C would have a slightly larger adverse cumulative impact in the vicinity of Desert Center, Kaiser Road, and Lake Tamarisk compared to Alternatives D and E. This is because Alternative C would site a gen-tie line directly adjacent to the Desert Sunlight approved gen-tie, and both projects would be present in the same ROW in the cumulative scenario. Multiple gen-tie lines in a single ROW would contribute to a slightly larger sense of industrialization in the immediate viewshed of Alternative C. The contribution of Alternative C to cumulative impacts would be considerable in combination with the Desert Sunlight gen-tie and other past, present, and reasonably foreseeable projects.

Alternative D

Impact Criterion V-1. The Alternative D transmission line is not anticipated to result in significant visual impacts under Impact Criterion V-1 given the extended viewing distances (over two miles) to potential scenic vista locations in the surrounding wilderness areas. Even though the resulting visual impact would be adverse but less than significant, Mitigation Measures VR-1 through VR-4 are still required to reduce likely visual impacts to the extent possible.

Impact Criterion V-2. There are no State Scenic Highways in the immediate Project vicinity, so significant visual impacts would not occur under this criterion.

Impact Criterion V-3. As discussed in Section 4.19.6 of this analysis, the Alternative D transmission line would introduce prominent built structures with considerable industrial character into an existing landscape generally absent such features causing a substantial degradation of the existing visual character or quality of the site and its surrounding landscape when viewed from foreground/middleground, at grade viewpoints including Kaiser Road (briefly), adjacent BLM lands, SR-177, and I-10 (KOP 6). The resulting visual impacts under this criterion would be significant and unavoidable. Views of the gen-tie transmission line from linear viewpoints including Kaiser Road, SR-177, and I-10 could experience a range of visual impact, though typically, given the large scale of the transmission structures and the open valley landscape, the close proximity view opportunities would experience significant and unavoidable visual impacts and the more distant viewing opportunities would likely experience adverse but less than significant visual impacts. Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

Impact Criterion V-4. The Alternative D transmission line is not anticipated to result in significant visual impacts under Impact Criterion V-4 since the facility would not be a source of significant light. The impact resulting from the FAA-required lighting on top of structures would be adverse but less than significant.

Impact Criterion V-5. The high degree of visual change that would be caused by the Alternative D transmission line (as viewed from Kaiser Road [briefly], adjacent BLM lands, SR-177, and I-10) would be allowed under the applicable Interim VRM Class IV management objective. Therefore, the resulting visual impact would be less than significant under this criterion. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

Impact Criterion V-6. The high degree of visual change that would be caused by the Alternative D transmission line would not be consistent with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1. These policy inconsistencies would result in an unavoidable, long-term adverse impact to visual resources. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

Impact Criterion V-7. The presence of the Alternative D transmission line would substantially add to a cumulative visual alteration. The resulting cumulative visual impact would be significant and unavoidable. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

Cumulative impacts would be slightly less than those described for Alternative C, but would nonetheless be cumulatively considerable.

Alternative E

Impact Criterion V-1. The Alternative E transmission line is not anticipated to result in significant visual impacts under Impact Criterion V-1 given the extended viewing distances (more than two miles) to potential scenic vista locations in the surrounding wilderness areas. Even though the resulting visual impact would be adverse but less than significant, Mitigation Measures VR-1 through VR-4 are still required to reduce likely visual impacts to the extent possible.

Impact Criterion V-2. There are no State Scenic Highways in the immediate Project vicinity, so significant visual impacts would not occur under this criterion.

Impact Criterion V-3. As discussed in Section 4.19.6 of this analysis, the Alternative E transmission line would introduce prominent built structures with considerable industrial character into an existing landscape generally absent such features causing a substantial degradation of the existing visual character or quality of the site and its surrounding landscape when viewed from foreground/middleground, at grade viewpoints including adjacent BLM lands, SR-177 (KOP 7), and I-10 (KOP 8). The resulting visual impacts under this criterion would be significant and unavoidable. Views of the gen-tie transmission line from linear viewpoints including Kaiser Road, SR-177, and I-10 could experience a range of visual impact, though typically, given the large scale of the transmission structures and the open valley landscape, the close proximity view opportunities would experience significant and unavoidable visual impacts, and the more distant viewing opportunities would likely experience adverse but less than significant visual impacts. Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

Impact Criterion V-4. The Alternative E transmission line is not anticipated to result in significant visual impacts under Impact Criterion V-4 since the facility would not be a source of significant light. The impact resulting from the FAA-required lighting on top of structures would be adverse but less than significant.

Impact Criterion V-5. The high degree of visual change that would be caused by the Alternative E transmission line (as viewed from adjacent BLM lands, SR-177, and I-10) would be allowed under the applicable Interim VRM Class IV management objective. Therefore, the resulting visual impact would be less than significant under this criterion. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

Impact Criterion V-6. The high degree of visual change that would be caused by the Alternative E transmission line would not be consistent with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1. These policy inconsistencies would result in an unavoidable, long-term adverse impact to visual resources. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

Impact Criterion V-7. The presence of the Alternative E transmission line would substantially add to a cumulative visual alteration. The resulting cumulative visual impact would be significant and unavoidable. However, Mitigation Measures VR-1 through VR-4 are required to reduce visual impacts to the extent feasible.

Cumulative impacts would be the same as described for Alternative D.

4.20 WATER RESOURCES

4.20.1 Methodology for Analysis

This section describes effects on water resources that would be caused by implementation of the proposed Desert Harvest Solar Project (DHSP) or an alternative. A discussion of cumulative effects related to water resources is also included in Section 4.20-13. Effects to water resources were identified based on the predicted interaction between construction, operation, and decommissioning of the project or an alternative and the baseline environmental setting described in Section 3.20.

Water resources effects were considered for the project's potential to: violate water quality standards or waste discharge requirements; substantially deplete groundwater supplies or interfere with groundwater recharge; substantially alter existing drainage patterns such that erosion or flooding occur on- or off-site; place structures within Flood Hazard Areas such that flood flows would be impeded or redirected, or result in substantial risk associated with flooding; substantially degrade surface water or groundwater quality.

4.20.2 Applicant Measures

The following Applicant Measure (AM) have been incorporated as design features of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project. In some cases, mitigation measures further clarify or expand on AM reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures and the following AM, the mitigation measures take precedence.

AM WR-1 **Manage Hazardous Materials and Use SPCC Plan.** The Applicant or its agents will:

- Train construction staff in the management of hazardous materials and use of spill control and cleanup equipment;
- Have a clear chain of command within the organizational structure with responsibility for implementing, monitoring, and correcting BMPs;
- Cover and contain hazardous materials so that they are not in contact with precipitation or runoff;
- Store hazardous materials in one or more central areas, and institute rules requiring all hazardous materials to be secured at the end of the day;
- Maintain good inventory records; store hazardous liquids and dispensing equipment in secondary containment;
- Maintain adequate quantities of spill containment and response equipment at readily accessible points throughout the site;
- Identify the worst case and most likely spill scenarios, and provide spill response equipment adequate to respond to these scenarios;
- Use chemicals presenting the least environmental hazard wherever possible;

- Store the smallest quantities of hazardous materials possible on the site;
- Maintain site security to reduce vandalism;
- Require all contractors to abide by the program BMPs and to identify any hazardous materials and specific BMPs pertaining to their trade or activity.
- The SPCC Plan for the site would address storage of mineral oil contained in transformers. A SPCC Plan is required when 10,000 gallons or more of mineral oil in electrical equipment is contained on site, or when 1,320 gallons of petroleum is stored on the site, although an SPCC Plan can be voluntarily implemented for lesser quantities. The SPCC Plan would address methods and procedures for managing these products, lighting, security, containment requirements, training requirements, staff responsibilities for inspecting storage and dispensing equipment; and equipment and procedures for responding to a spill or release of stored petroleum products.
- Riprap increases surface roughness and slows runoff velocities, decreasing sediment transport, and increasing flow depth. Riprap would be used in conjunction with decompaction of soil, as riprap would not mitigate flow or volume.
- Check whether dams can be constructed to address specific post-development hydraulic characteristics, if needed.

4.20.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan.

4.20.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Plan. It is possible that, as a result of the CDCA Plan amendment, that in the future another solar energy generation project could be proposed with impacts similar to the DHSP, however, such impacts are speculative at this time and no effects from the DHSP would occur.

4.20.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No effects from the DHSP would occur.

4.20.6 Alternative 4 – Proposed Solar Project

The project is expected to occur in compliance with all applicable water quality standards and waste discharge requirements, as presented in Section 3.20.2 of this EIS. Key standards and requirements relevant to water resources effects of the project include, but are not limited to, those listed below.

- Streambed Alteration Agreement (SAA) from the California Department of Fish and Game (CDFG) for alterations to state-jurisdictional streambeds
- Clean Water Act (CWA) Section (§) 404 permit from the U.S. Army Corps of Engineers (USACE), if a determination of USACE jurisdiction is made for the project site
- CWA §402 National Pollutant Discharge Elimination System (NPDES) permit from the U.S. Environmental Protection Agency (USEPA) for discharge of pollutants
- CWA §401 Water Quality Certification (WQC) from the Colorado River Basin Regional Water Quality Control Board (RWQCB) for the discharge of dredged or fill materials

All applicable water quality standards and waste discharge requirements are presented in Section 3.20.2 of this EIS. Mitigation Measure (MM) WAT-1 (Demonstrate Compliance with Water Quality Permits), presented below under the "Mitigation Measures" heading, requires the project owner to demonstrate compliance with all applicable permitting requirements prior commencing construction, which will ensure that the project is in compliance with all applicable water quality permits and waste discharge requirements associated with construction, operation, and decommissioning activities. Therefore, potential effects associated with permit compliance are the same for all three project phases, and are not addressed further in this discussion for Alternative 4.

Construction

Construction water requirements associated with the entirety of the proposed project or alternatives are summarized in Table 4.20-1, including water required for the solar facility as well as water required for the gen-tie (impacts of the gen-tie alternatives are discussed separately in Sections 4.20.10 through 4.20.14).

Table 4.20-1. Construction Water Requirements

Construction Component	Acre-Feet per Year	Total Acre-Feet
Dust Suppression	400–500	800–1,000
Concrete Batching	0.51	0.51
Total	400.51–500.51	801.02–1,001.02

1 - Per Table 2-2 (Estimated Truck Deliveries), the project would require 165 concrete truck deliveries. Assuming that each truck would carry approximately 10 cubic yards of concrete, total concrete for the project is approximately 1,650 cubic yards. Per the 1997 Uniform Building Code (UBC 1997), the maximum water-to-concrete ratio should be no more than 0.5 (see Tables 19-A-2 and 19-A-4, "Maximum Water-Cementitious Materials Ratio, By Weight, Normal-Weight Aggregate Concrete" of (UBC 1997)). Assuming the weight of concrete is 150 pounds per cubic foot and the weight of water is 62.4 pounds per cubic foot, the total water required for concrete is 22,275 cubic feet, or approximately 0.51 acre-foot.
2 - Water required for the gen-tie includes water associated with concrete batching.

As shown in Table 4.20-1, construction would require approximately 400.51 to 500.51 afy over the 24-month construction period, for a total of approximately 801.02 to 1,001.02 acre-feet. A total of three temporary storage ponds would be constructed on the project site to ensure that the

necessary water supply is available when needed. Each pond would occupy approximately three-quarters of an acre and would have a capacity of 21.5 million gallons, for a total area of 2.25 acres and a total capacity of 64.5 million gallons, or approximately 198 acre-feet. In order to maximize efficient use of the project site while also ensuring that sufficient water supply is available to the area(s) that are actively undergoing construction activities at any given time, two or three ponds would operate simultaneously, with one pond designated per every approximately 400 acres of the site that are under active site preparation or construction activities that require water. The ponds would be connected to supply wells and would be co-located with planned stormwater retention basins that would be used during project operation to address stormwater runoff, such as described in MM WAT-4 (Surface Water Protection Plan and Drainage Design Specifications). During construction of the project, the temporary storage ponds would be lined to prevent infiltration, fenced for public safety, and covered with netting to deter ravens. All applicable BMPs identified in the project's Surface Water Protection Plan (SWPP), as required by MM WAT-4, would be implemented during use of the temporary storage ponds.

Direct Effects

Groundwater Supply and Recharge

As described above, total construction water demand would be 801.02 to 1,001.02 acre-feet over a period of 24 months, or 400.51 to 500.51 afy. The Applicant's Plan of Development (POD) indicates that pending the permitting and physical feasibility of using on-site groundwater wells, construction water will either be obtained from on-site wells and/or it would be pumped from off-site wells in the project area and trucked to the project site. The project and surrounding area is underlain by the Chuckwalla Valley Groundwater Basin (CVGB), and it is reasonably assumed that the source of construction water is the CVGB, regardless of whether the water is pumped on-site or off-site. Also as described in the Applicant's POD, the Applicant will perform the necessary studies and secure the necessary permissions to install any wells required, and tests will be performed according to all best practices and established protocols to ensure water sufficiency and quality at each active well of appropriate capacity will be evaluated. Potential impacts associated with trucking are addressed in other relevant sections of this document, including Sections 4.18 (Transportation and Public Access), 4.12 (Noise and Vibration), and 4.2 (Air Resources); potential impacts associated with trucking water to the project site are discussed below, under Mitigation Measure WAT-2 (Alternative Water Source and Groundwater Offsets).

Project construction could affect groundwater supply and recharge if one of the following occurs: (1) the affected groundwater basin is in long-term overdraft conditions; (2) construction activities cause the affected groundwater basin to be in long-term overdraft conditions; (3) substantial drawdown occurs at groundwater wells in the area as a result of construction groundwater pumping; or (4) construction activities redirect natural recharge to groundwater basin(s), such as through the introduction of impervious areas that prevent infiltration. Each of these potential conditions is discussed below.

Overdraft and Drawdown. Groundwater overdraft occurs when the quantity of water removed from a groundwater basin exceeds the rate of recharge to that basin, while drawdown occurs when groundwater pumping lowers the aquifer level such that other wells in the vicinity of pumping activities experience an increased depth to groundwater, requiring greater energy to

draw the same volume of water from affected wells. Overdraft and drawdown effects may be long-term, where substantial permanent new groundwater demands are introduced, or may be short-term and seasonal, where new groundwater demand(s) are introduced but are temporary, such that the existing balance of groundwater removal and recharge is restored once the new demand(s) ceases. The discussion of groundwater resources presented in Section 3.20 of this EIS includes characterization of the current safe yield for the CVGB. As discussed in Section 3.20, there is varying expert opinions regarding the current water budget (balance) for the CVGB, and estimates range from a positive balance of 2,623 afy to a negative balance of 7,912 afy, where the negative balance indicates overdraft conditions. In the absence of long-term groundwater monitoring data, in order to address this discrepancy in expert opinion, the analysis provided in this EIS and supported by the analysis included in the WSA (Appendix E) considers a range of potential conditions of the CVGB.

As described above, construction of the project would require a water supply of 400.51 to 500.51 afy; the hydrologic budgets presented in Tables 3.20-2 and 3.20-3 (see Section 3.20) indicate that sufficient groundwater supply may or may not be available in the CVGB to meet project construction requirements without contributing to overdraft conditions. In addition, the estimated water budgets provided in Tables 3.20-2 and 3.20-3 reflect existing (baseline) environmental conditions relevant to groundwater supply availability, and do not reflect cumulative conditions within the basin. Depending on climatic conditions and pumping intensity, it is possible that groundwater pumping activities associated with project construction could contribute to temporary overdraft and/or drawdown conditions. Groundwater pumping for construction of the project would be short-term and limited specifically to the construction period of 24 months. Mitigation measures identified for the proposed DHSP and listed below would ensure that the project would not contribute to overdraft conditions, should they be present or develop during implementation of the project, and that any potential effects associated with overdraft or drawdown would be temporary and less than significant, and would reverse once project pumping activities cease. Construction of the project would not have the potential to result in long-term overdraft conditions.

- MM WAT-2 (Alternative Water Source and Groundwater Offsets) would address potential drawdown effects by avoiding pumping or over-pumping at the project's supply well(s), and by ensuring that the project does not perpetuate known or predicted overdraft conditions. By requiring use of an alternative water source during projected overdraft years, this mitigation measure would ensure that the proposed DHSP does not contribute to overdraft conditions.
- MM WAT-3 (Groundwater Drawdown Monitoring and Reporting Plan) would address potential overdraft effects by requiring comprehensive monitoring and reporting activities, as well as close coordination with the BLM and Colorado River Basin RWQCB. Monitoring and reporting actions required per this mitigation measure will enable the BLM and the RWQCB to identify how the groundwater resource behaves in response to the project, and to make management decisions accordingly.

Recharge. As described in Section 3.20, primary recharge to the CVGB occurs through percolation of runoff from the surrounding mountains, percolation of precipitation to the valley floor, and subsurface inflow from adjacent groundwater basins. Surface runoff from the surrounding mountains is largely ephemeral, with most surface water features containing flow only in direct response to precipitation events, and average annual precipitation in the area is only 3.6 inches.

The project would have no effect on precipitation rates in the area. However, the placement of permanent and temporary project features could affect the distribution of groundwater recharge across the site. Creation of new impervious surfaces associated with the project could interfere with groundwater recharge by reducing the amount of surface area through which precipitation and surface water percolates to underlying groundwater resources.

New impervious surfaces would result from the implementation of permanent project components, including the PV panels, concrete foundations, O&M facility, access roads, and substation. Soil compaction associated with access road improvements and the use of heavy equipment and vehicles across the project site could also affect recharge by reducing the rate at which water is able to percolate through the ground. In addition to permanent infrastructure, temporary construction facilities including covered assembly areas, staging areas, and temporary parking areas would also introduce new impervious areas that could affect the rate and distribution of surface water percolation/infiltration to underlying groundwater.

The placement of PV panels and foundations would likely result in site-specific redistribution of recharge rates, but is not expected to result in a substantial effect to groundwater recharge rates or quantities, such that the overall groundwater basin would be affected. Each individual PV panel is an impervious feature, but the panels would be organized into arrays with each array consisting of 12 rows of mounted PV panels; with this configuration, there would be spaces between each mounted panel where precipitation would pass through, reaching the ground below for percolation to underlying groundwater resources.

Other permanent and temporary project features mentioned above would have similar effects to groundwater recharge; site-specific alterations in the distribution of recharge patterns are anticipated to occur, but such effects would not reduce overall recharge of the CVGB. Applicant measures listed in Section 4.20.2 include a measure which requires the use of riprap to increase surface roughness and slow runoff velocities; this measure would also minimize potential adverse effects to groundwater recharge because slower runoff facilitates infiltration, thus maximizing groundwater recharge. Additionally, mitigation measures presented under the "Mitigation Measures" subheading and summarized below would minimize or avoid potential effects to groundwater recharge during construction.

- MM WAT-4 (Surface Water Protection Plan and Drainage Design Specifications) requires the implementation of BMPs which would maximize groundwater recharge, such as use of high-roughness groundcover and use of common drainage basin(s) or depression(s) where runoff would collect.

Construction Site Dewatering. Construction of the project would require excavation activities that may encounter shallow groundwater and require construction site dewatering activities. Perched or shallow groundwater may be ephemeral in nature (occurring in direct response to precipitation events), or it may be recharged by percolation from surface water and/or nearby saturated subsurface zones. Perched groundwater is essentially a subsurface zone of saturation that is separated from the main groundwater table by a typically impermeable divide. It is not possible to quantify the likelihood of encountering perched groundwater because it is not part of the main groundwater resource and would not be detected in typical groundwater monitoring activities. If project excavation results in the unexpected encountering of perched groundwater, the local groundwater supply could be adversely affected as a result of directly encountering construction vehicles and equipment, and encountering the potentially hazardous materials such as

motor oil and lubricating fluids required to operate vehicles and equipment, and/or the local groundwater supply could be adversely affected due to uncontrolled release of groundwater onto the surface. Measures presented under the "Mitigation Measures" subheading and summarized below would minimize or avoid potential effects associated with construction site dewatering.

- MM WAT-5 (Construction Site Dewatering Management) would ensure that if perched groundwater is unexpectedly encountered during project construction, dewatering activities would occur in compliance with the California Stormwater Quality Association's (CASQA) California Stormwater BMP Handbook for Construction, or other similar guidance document supported by the BLM. Dewatering operations are practices that manage the discharge of pollutants when non-stormwater and accumulated precipitation must be removed from a work location so that construction work may be accomplished; dewatering practices must occur in compliance with laws and regulations, and require approval of the RWQCB (CASQA 2003).

Water Supply Reliability. Section 3.20 of this EIS provides a discussion of Senate Bills 610 and 267, which require detailed analysis of water supply availability for certain types of large development projects. In accordance with California Water Code, as amended by SB 610 and SB 267, a Water Supply Assessment (WSA) has been prepared for the project and is included as Appendix E to this EIS. The WSA presents detailed analysis of water supply availability projections under normal-year, single-dry year, and multiple-dry year conditions. As projected in Tables WSA-9 through WSA-15 and based on assumptions presented in Section 4.6 of the WSA, overdraft conditions could occur during implementation of the proposed DHSP. Such conditions would occur regardless of the project and would recover over the lifetime of the project in response to anticipated water usage associated with other projects in the basin; therefore, with consideration of the assumptions described in the WSA, overdraft conditions in the CVGB are anticipated to be temporary. In addition, construction of the DHSP would include the implementation of mitigation measures to avoid project-related contribution to overdraft conditions and potential water supply reliability effects. Measures relevant to water supply reliability are presented under the "Mitigation Measures" subheading and summarized below.

- MM WAT-2 (Alternative Water Source and Groundwater Offsets) would avoiding pumping or over-pumping at the project's supply well(s), and ensure that the project does not perpetuate known or predicted overdraft conditions.
- MM WAT-3 (Groundwater Drawdown Monitoring and Reporting Plan), previously mentioned, would require comprehensive groundwater monitoring and reporting actions during project pumping activities, including close coordination with regulatory agencies and response actions to address detected adverse effects.
- MM WAT-6 (Drought Water Management and Water Conservation Education Programs) would adjust the project's water use under severe drought conditions, and ensure associated training of project operators and employees.

As noted, Mitigation Measures WAT-2, WAT-3, and WAT-6 would prevent project-related contribution to overdraft conditions by prohibiting groundwater pumping during projected overdraft years, requiring the use of a water source that is not the CVGB during years that the CVGB is projected to be affected by overdraft conditions, ensuring the monitoring of groundwater and collecting of groundwater data in order to characterize the CVGB and make management decisions accordingly, and ensuring that project operators and employees are aware of the project's water requirements and the restrictions associated with groundwater use to meet those

requirements. Sufficient water supply is anticipated to be available for the project, and implementation of the project would not result in adverse effects to water supply reliability. Please see the WSA presented as Appendix E for further discussion of water supply reliability.

Colorado River Water. As discussed in Section 3.20 (see "Colorado River Accounting Surface"), groundwater pumped from the CVGB at or below an elevation of 234 feet amsl can be considered recharge from the adjudicated Colorado River. According to the Colorado River Board of California (CRBC), municipal, industrial, and recreational water users found to be using Colorado River water, through Accounting Surface delineations, without a Colorado River water right may be eligible to contract for water from the Lower Colorado Water Supply Project (CRBC 2000). Also as described by the CRBC, if a well or pump extends into the Accounting Surface for the purpose of extracting water, then a valid water contract is required from the Secretary of the Interior, through its agent, the Bureau of Reclamation (CRBC 2003).

The discussion presented under "Groundwater Level Trends" in Section 3.20 indicates that groundwater levels in the Hayfield Planning area, including the CVGB and the project site, range from the ground surface to 400 feet below ground surface (bgs). Discussion of groundwater monitoring data collected in the general vicinity of the DHSP site, presented under "Colorado River Accounting Surface" in Section 3.20.2, suggests that static groundwater elevations in the project area are well above the elevation of the Colorado River Accounting Surface, indicating the groundwater pumped at the project site would not result in the production of allocated Colorado River water.

Additionally, the DWR reported in the latest Bulletin 118 Update (2004) that the upper 100 feet of saturated sediments in the CVGB are estimated to have approximately 900,000 acre-feet of groundwater in storage, as based on the 1975 version of DWR Bulletin 118 (DWR 2004). Based on this 1975 estimation, the upper four feet of saturated sediments between the assumed water surface elevation of 230 feet amsl (noted above) and the Colorado River Accounting Surface could potentially contain 36,000 acre-feet of water, assuming 900,000 acre-feet in the upper 100 feet, divided by 100 feet, then multiplied by four feet (SCE 2010). These estimates suggest that there is sufficient groundwater in storage above the Colorado River Accounting Surface to meet the project's construction water requirements of 400.51 to 500.51 afy. Groundwater in storage in saturated sediments above the Colorado River Accounting Surface is replenished by percolation of runoff from the surrounding mountains, and percolation of precipitation to the valley floor. However, although the estimates of groundwater storage described above indicates that sufficient water is available in storage above the Colorado River Accounting Surface to meet the needs of the proposed DHSP, this discussion is based on DWR data from 1975 (DWR 2004), which does not consider uses of CVGB water which have developed in the 35 years since then. The calculations described above also assume that groundwater stored in the upper 100 feet of saturated sediments is distributed evenly, and that the volume in storage within a four-foot section of these sediments can been directly extrapolated from the overall storage.

In addition, although data provided in reference to the Desert Sunlight Solar Project suggest that groundwater elevations are well above the Colorado River Accounting Surface, the assumptions described above regarding saturated sediments at the project site are problematic compared to analysis of subsurface conditions provided for the Genesis Solar Energy project, which is also located within the CVGB. The Genesis analysis included preparation of hydrostratigraphic cross-sections, or diagrams and maps of subsurface materials which form distinct hydrologic

units with respect to the movement of groundwater within the CVGB, as compiled in 2009. These cross-sections indicate varying sub-surface conditions relevant to grain size and static groundwater levels (CEC 2010; see pages 944 through 946 of 1,380: *Soil and Water Figures 8, Hydrostratigraphic Cross-Section A-A', 9, Hydrostratigraphic Cross-Section B-B',* and *10, Hydrostratigraphic Cross-Section Lines*). It is plausible that the volume of water in storage within the saturated sediments above the estimated Colorado River Accounting Surface, and the distribution or availability of water stored in saturated sediments, are less than indicated by DWR the estimates described above.

In summary, comparison of available groundwater monitoring data and interpretations dated between the 1960s and as recently as 2000 suggest that static groundwater level elevations in the vicinity of the proposed DHSP site are well above the Colorado River Accounting Surface, with a buffer of more than 200 feet between groundwater elevation and the Colorado River Accounting Surface for the most recent data (year 2000) located in closest proximity to the project site (measured near Desert Center, approximately three miles south of the DHSP site), but further analysis produced in the year 2009 suggest that saturated sediments below the ground surface at the DHSP site may not be evenly distributed. Based on available information, it is considered unlikely yet possible that groundwater pumping associated with the proposed DHSP could produce water from below 234 feet amsl, which would be considered Colorado River water. Therefore, in order to address this potential and avoid the consumption of allocated Colorado River water, Mitigation Measure WAT-7, which is presented under the "Mitigation Measures" subheading and summarized below, is required.

- MM WAT-7 (Colorado River Water Supply Plan) would ensure that if the project results in pumping of any groundwater that would be replaced by Colorado River water, conservation actions would be implemented to "replace" the groundwater on an acre-foot by acre-foot basis, equating to a ratio of 1:1.

Surface Water and Drainage Patterns

As described in Section 3.20, existing drainage patterns on the project site are characterized by ephemeral drainages which contain water only after precipitation events sufficient to produce runoff. Project construction would alter surface water drainage patterns across the project site through the implementation of infrastructure and components such as the temporary water storage ponds described above, the PV arrays and access roads, and soil compaction required to install these features. Construction of the project would include both temporary and permanent disturbance to the site; temporary disturbance would result from trenching for electrical conduit, construction staging areas, concrete batch plant, and temporary access roads, while permanent disturbance would result from construction of access roads, the substation and O&M facility, parking areas, and equipment pads.

Alterations to drainage patterns on and surrounding the project site during the construction phase could result in erosion and/or flooding effects on- or off-site. Encroachment of a project structure into a stream channel or floodplain could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. Earthmoving activities would occur within and/or adjacent to on-site drainages only where permitted for permitted road crossings, trenching, and restoration work. In addition, it is anticipated that some project features would be placed in areas subject to periodic overland flow and/or broad, ephemeral washes. Compliance with required

laws and regulations described in Section 3.20 would minimize the project's potential effects on the drainage patterns of the area.

As described in Section 3.20.2 under "Surface Water Resources," the Desert Sunlight Solar Farm project, which is located adjacent to the north of the DHSP site, had initiated construction activities at the time of publication of the Notice of Intent for DHSP, and the initial stages of the Desert Sunlight project have included the construction of a perimeter fence and earthen berm along the project boundary. The berm surrounds a water storage and evaporation pond, both of which will be removed following construction of the Desert Sunlight project; the berm is not anticipated to interfere with surface water flows onto the DHSP site.

The DHSP site is located in an area that has been identified by the DWR as an "Awareness Floodplain," or an area that is considered prone to flooding but has not been mapped by FEMA. In accordance with Riverside County's Floodplain Management Ordinance 458, development within the Awareness Floodplain is required to comply with specific guidelines designed to avoid flood hazards associated with the placement of infrastructure within areas prone to flooding; such guidelines are summarized in Section 3.20 under the subheading "Riverside County Floodplain Management Ordinance 458". As described above and in compliance with MM WAT-1 (Demonstrate Compliance with Water Quality Permits), the project owner shall demonstrate compliance with all applicable permitting requirements prior to commencing construction; this includes permit(s) for development within the Awareness Floodplain for compliance with Ordinance 458.

As described in the analysis of groundwater recharge effects presented under "Groundwater Supply and Recharge," construction of the project would include soil compaction associated with access road improvements and the use of heavy equipment and vehicles across the project site. Soil compaction could increase surface water runoff rates and quantities, particularly during a large (100-year) storm event. The conclusions of hydrologic, hydraulic, sediment transport, and scour analyses conducted on the Desert Sunlight Solar Farm (DSSF) site (incorporated by reference in Section 1.11), adjacent to the north of the proposed DHSP site, are considered applicable to the DHSP site due to the close proximity, and the fact that both projects would employ solar PV technology and associated infrastructure. Therefore, following is a summary of conclusions regarding how the development of a solar PV project in the proposed DHSP area could result in adverse effects associated with soil compaction and stormwater runoff:

- Without the implementation of mitigation measures, solar development construction would increase stormwater peak-flow rates and velocities both on site and off site, particularly under 100-year and 10-year storm conditions;
- De-compacting soils in areas between panel arrays would help to maintain pre-development hydraulic conditions, particularly as related to the potential for flooding on or off site;
- Construction of features such as basins with riprap protection and/or detention basins would retain excess stormwater flow resulting from the project;
- Construction of PV arrays would include placement of foundations which would be subject to scour, particularly following a 100-year storm event; placement of riprap at the base of each support structure would help reduce the effects of local scour and decrease runoff velocities; and
- Construction of the solar development would apply consistent soil type, compaction, and grading patterns across the site, in comparison with existing conditions, which are marked by areas

of relatively inactive sediments ("desert pavement") as well as more active areas characterized by finer sand and gravel; these changes would likely create a geologic environment conducive to the formation of shallow channels up to two feet or less in depth (i.e., long-term scour), mitigable by periodic monitoring to identify changes to the site grading and maintenance activities as/if needed to restore design conditions (AECOM 2010).

Section 1.2.10 (Erosion Control and Stormwater Drainage) of the Applicant's POD for the project describes that with the exception of the inverters and transmission facility, solar facility development will maintain drainage patterns where possible, with water exiting the site in existing natural contours and flows. In addition, impervious groundcover will be minimized to the inverter and transmission cement pad and a small parking area, in order to maintain existing drainage patterns and infiltration throughout the photovoltaic panel field. Existing small to moderate ephemeral washes will remain intact at locations capable of being traversed by installation equipment. Where paved roads cross larger ephemeral washes, culverts will be constructed to withstand the 100-year, 24-hour storm event. Where unpaved roads cross washes, a slight grading of the channel bank will allow vehicles to cross the wash. To ensure that these project design features are implemented to effectively minimize potential effects of project construction to surface water and drainage patterns, mitigation measures for project construction are required, as presented under the "Mitigation Measures" subheading and summarized below.

- MM WAT-8 (Flood and Erosion Structure Damage Protection) would ensure that permanent project features are designed per applicable floodplain development guidelines and maintained to avoid adverse impacts to stormwater runoff.
- MM WAT-1 (Demonstrate Compliance with Water Quality Permits) would ensure that the project occurs in compliance with all applicable laws and regulations, including as relevant to drainage pattern alterations.
- MM WAT-4 (Surface Water Protection Plan and Drainage Design Specifications) would ensure that specific BMPs are implemented during project construction to address the potential for increased stormwater runoff and erosion on and off site, including through de-compaction of soils on the project site.

State Jurisdictional Drainages. Surface water and drainage patterns could be adversely affected if jurisdictional drainages are disturbed or altered as a result of project construction. As described in Sections 3.3 (Biological Resources – Vegetation) and 3.4 (Biological Resources – Wildlife) of this EIS, designated jurisdictional drainages are located throughout the project site. Aspen has calculated the total acreage of state-jurisdictional streambeds and adjacent riparian habitat as 113 acres within the proposed solar generator site. Each of the generator tie-line alternatives would affect a limited additional acreage of state-jurisdictional streambeds or woodland vegetation, depending on the specific locations of access roads, transmission line structures, and work sites. Potential impacts of the project to jurisdictional drainages are addressed in Sections 4.3 (Biological Resources – Vegetation) and 4.4 (Biological Resources – Wildlife) of this EIS.

Stormwater Drainage Systems

No stormwater drainage system exists at the project site. Construction of the project would include implementation of a Surface Water Protection Plan (SWPP), in compliance with MM WAT-4. The SWPP will specify BMPs to minimize and/or avoid potential effects associated with stormwater runoff. As described above, construction of the project would include imple-

mentation of numerous actions to minimize increases in stormwater runoff quantity and velocity; the project is not expected to create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems. There is potential for construction of the project to contribute sources of polluted runoff if an accidental leak or release of harmful materials were to occur during construction activities; potential water quality effects are discussed in detail below (see "Water Quality").

Flood Hazard Areas

As described in Section 3.20.2 (see "Surface Water Resources"), the project site and surrounding area are designated by FEMA as Flood Zone D, or areas with "possible but undetermined flood hazards," where no flood hazard analysis has been conducted. According to FEMA, development is permitted in Flood Hazard Areas provided that the development complies with local floodplain management ordinances. The *Preliminary Flood Plain & Hydrology Analysis* prepared for the project indicates that surface water flows resulting from a 100-year storm event in the project area can exceed 1,800 cubic feet per second, and flow depth would not exceed three to five feet (PHB & Associates 2009). All applicable floodplain management ordinances would be fully complied with in accordance with FEMA's regulations on development in Flood Hazard Areas. The permanent aboveground features associated with the project would be designed and engineered to withstand potential flooding and erosion hazards. Mitigation measures presented under the "Mitigation Measures" subheading and summarized below would avoid potential effects of project construction associated with Flood Hazard Areas.

- MM WAT-1 (Demonstrate Compliance with Water Quality Permits) would ensure that the project occurs in compliance with all applicable laws and regulations.
- MM WAT-4 (Surface Water Protection Plan and Drainage Design Specifications) would ensure that specific BMPs are implemented during project construction.
- MM WAT-8 (Flood and Erosion Structure Damage Protection) would ensure that permanent project features are designed and constructed per applicable development guidelines.

Water Quality

Construction, operation and maintenance, and decommissioning of the project is expected to be consistent with all beneficial uses and water quality criteria defined in the Basin Plan, as discussed in Section 3.20 of this EIS.

Degradation of surface water quality and/or groundwater quality could occur through the effects of sedimentation, and/or through the accidental release of hazardous materials. Soil-disturbing activities that would occur during project construction, including excavation and grading, would have the potential to result in soil erosion (transport) and sedimentation (delivery) that could degrade water quality. This impact would be most likely if a storm event occurs during construction activities, while disturbed soils are exposed and/or have not yet been re-vegetated.

In addition to the potential effects of erosion and sedimentation, the accidental release of hazardous materials during construction of the project could result in water quality degradation within and downstream of the site. Potentially hazardous materials that may be used and/or produced during construction include but are not limited to the following: diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, lubricant grease, cement slurry, and other

fluids required for the operation of construction vehicles and equipment. Motorized equipment used at the project site during construction could leak hazardous materials, such as motor oil, transmission fluid, or antifreeze, due to inadequate or improper maintenance, unnoticed or unrepaired damage, improper refueling, or operator error.

Direct contact with potentially hazardous materials could result from a spill or leak that occurs directly above or within the bed and banks of a flowing stream or waterbody. Because surface water on the project site is ephemeral in nature, direct contamination as a result of accidental release is considered unlikely, unless a precipitation event occurs during active construction activities. Indirect contamination of surface water could occur if a potentially harmful or hazardous material is released into a dry stream bed or wash and is subsequently transported through runoff during a storm event, eventually making contact with perennial flowing water. Groundwater resources could also be contaminated through indirect contact with potentially harmful or hazardous materials. This could occur if an accidental spill of harmful materials is allowed to leach through the ground surface to underlying groundwater resources, or if construction-related excavation activities encounter perched groundwater and direct contact with hazardous materials occurs.

The DHSP would use herbicides for weed control as appropriate, as outlined in the Integrated Weed Management Plan in Appendix C.10. Use of herbicides would be in accordance with the measures and standard operating procedures in the BLM's Herbicide PFEIS. As described in Chapter 1, Section 1.9.1, the DHSP EIS is tiered to the Herbicide PFEIS. Complying with the measures and standard operating procedures in the Herbicide PFEIS, MM PHS-9 (use licensed herbicide applicator), and the mitigation measures below (MM WAT-9, MM WAT-1, MM WAT-4, and MM WAT-5) would avoid potential effects of herbicides on water quality.

Section 1.2.17 (Spill Prevention and Containment) of the Applicant's POD for the project states that a Spill Prevention Control and Countermeasure Plan (SPCC) will be prepared and implemented during construction of the project. The construction SPCC Plan will include spill prevention and countermeasures procedures including but not limited to the following: a spill record (if applicable), analysis of potential spills, description of containment facilities, fill and overfill prevention facilities, spill response procedures, personnel training and spill prevention. The project's substation would include equipment that required containment in the case of a spill or accidental release of hazardous materials, and the substation pad will be designed to capture any spills of insulator material; the solar facility is not anticipated to require containment structures. Construction and maintenance vehicles will be maintained in accordance with manufacturer recommendations to minimize the risk of vehicle spills.

Mitigation measures presented under the "Mitigation Measures" subheading and summarized below would avoid potential effects of project construction to water quality.

- MM WAT-9 (Accidental Spill Control and Environmental Training) requires implementation of BMPs to avoid potential water quality impacts associated with accidental spill(s) or release(s) of materials during construction. This training will include but is not limited to hazardous materials handling procedures for reducing the potential for a spill during construction, and an emergency response program to ensure quick and safe cleanup of accidental spills.
- MM WAT-1 (Demonstrate Compliance with Water Quality Permits) ensures that construction of the project would occur in compliance with all applicable water quality regulations.

- MM WAT-4 (Surface Water Protection Plan and Drainage Design Specifications) specifies BMPs to be included in the project's SWPP that would minimize or avoid potential water quality impacts by requiring the implementation of erosion control measures such as use of high-roughness groundcover and the strategic placement of straw wattles and silt fences. The SWPP would achieve the same objectives as a SWPPP under the Clean Water Act, and the SWPP may substitute for a SWPPP if the project is not subject to Section 402 of the CWA, further ensuring that significant water quality impacts would not occur.
- MM WAT-5 (Construction Site Dewatering Management) ensures that if dewatering activities are required during project construction, they would occur per approved guidelines, thus minimizing the potential for adverse water quality impacts to occur.

Indirect Effects

Indirect effects are those effects "…which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on water and air and other natural systems, including ecosystems" (40 CFR 1508.8(b)).

Potential indirect effects to water resources associated with construction of the Alternative 4 could occur if one of the scenarios described below is realized as a result of project construction.

- Groundwater pumping associated with construction of the proposed project decreases outflow from the CVGB to hydrologically connected groundwater basin(s), resulting in decreased water availability in the affected basin(s).
- An accidental spill or leak of hazardous materials occurs and the material(s) is left on the ground surface, where it leaches through soils to underlying groundwater resources, resulting in groundwater contamination.
- Soil erosion and sedimentation generated on-site as a result of ground disturbance during construction of the proposed project is not contained on-site and is subsequently transported off-site through stormwater runoff, resulting in degradation of downstream water quality.

Compliance with the mitigation measures summarized above and presented below under the "Mitigation Measures" sub-heading would minimize or avoid the potential for the indirect effects described above to occur as a result of construction of Alternative 4.

Operation and Maintenance

Section 2.4.3 (Structures and Facilities) describes that a double-pass reverse osmosis (RO) system and demineralization evaporation pond would be used to treat locally pumped groundwater by decreasing concentrations of total dissolved solids (TDS) to a level acceptable for application on the panels. The RO system would produce up to approximately 20 gallons per minute (gpm) of low-TDS water, as well as approximately 9 gpm of "reject water," or brine water that is too high in TDS content to be applied to the PV panels during washing activities. As such, approximately 45 percent of water produced by the RO system would be reject water. The reject water would be piped to an evaporation pond encompassing approximately one acre, where the liquid would evaporate, leaving salts and minerals that would be cleaned out and disposed of at an

appropriate facility as needed. Operational water requirements associated with the project are summarized in Table 4.20-2.

Table 4.20-2. Operational Water Requirements

Project Component	Acre-Feet per Year
Panel Washing	18–27
Reverse Osmosis Reject Water	8–12
O&M Facilities and Fire-Fighting	0.02[1]
Total	26.02–39.02

1 - As described in Section 2.4.5 (Operations and Maintenance Activities), under "Operations Equipment," a permanent, above-ground 5,000-gallon water storage tank would be used for O&M tasks and facilities, including on-site fire-fighting; 5,000 gallons converts to approximately 0.02 acre-feet. It is anticipated that the storage tank would need to be re-filled on an annual basis.

As shown in Table 4.20-2, the project's total operational water requirement would be approximately 26.02 to 39.02 afy.

Operation and maintenance of the project would include routine preventative maintenance as well as corrective maintenance activities, as needed. As described in the Applicant's POD, the project will be maintained using a Computerized Maintenance Management Software (CMMS) package, vendor and contractor recommendations, and good engineering practices to plan and implement the component preventive maintenance program. Potential effects from operation and maintenance of the project to water resources are discussed below.

Direct Effects

Groundwater Supply and Recharge

Operation of the project would require a water supply of 18 to 27 afy for washing PV panels, assuming 1.1 gallons of water for each PV panel and a washing schedule of two to three times per year. As with construction of the project, it is anticipated that operational water would be pumped from the underlying CVGB using on-site supply wells, or it would be pumped from off-site wells within the CVGB and trucked to the project site. Potential impacts associated with trucking the proposed DHSP water supply to the site are discussed under Mitigation Measure WAT-2 (Alternate Water Source and Groundwater Offsets).

Overdraft and Drawdown. There is differing expert opinion regarding the current budget of the CVGB, and whether the basin is currently affected by overdraft conditions. Potential budget scenarios are presented in Tables 3.20-2 and 3.20-3, each of which is assessed in this impact analysis. It is anticipated that the CVGB will be overdrafted during the lifetime of the project, and that such effects would occur regardless of the proposed DHSP's water requirements. In order to ensure that the project does not contribute to overdraft conditions in the CVGB, MM WAT-2 requires the use of an alternative water source and/or replacement of CVGB used during any year that the CVGB is projected to be in overdraft, thus ensuring that the project does not contribute to the presence of overdraft in this basin. In addition, MM WAT-3 requires that the project's Groundwater Monitoring and Reporting Plan would be implemented for at least the first five years of the project, beginning with the onset of construction. As specified in MM WAT-3, annual groundwater monitoring data reports will be submitted by the project owner to the BLM and the Colorado River Basin RWQCB, and corrective action(s) will be required if these reports indicate groundwater trends such as overdraft or drawdown.

Recharge. Operation of the project would not introduce new impervious surfaces (not previously introduced during construction of the project) and would not further compact soils on the project site such that groundwater recharge would be adversely affected. The presence of PV panels over the lifetime of the project could affect localized runoff patterns due to "drip line" effects, which occur when surface runoff in direct response to precipitation events is concentrated along the lowest edge of PV panel arrays. These localized effects to surface water runoff patterns would have no effect on infiltration rates or groundwater recharge

Construction Site Dewatering. Operation of the project would not include ground-disturbing activities that could result in encountering shallow or perched groundwater resources; dewatering activities would not be necessary.

Water Supply Reliability. As noted above, it is anticipated that the project would require an operational water supply of 26.02 to 39.02 afy, which includes high-TDS reject water that would be produced through the RO system. The WSA included as Appendix E indicates that overdraft conditions could occur during implementation of the proposed project and alternatives, but such conditions would be temporary, and would likely occur regardless of the project. Sufficient water supply is anticipated to be available for the project, and implementation of the project would not result in adverse effects to water supply reliability.

Colorado River Water. As with construction, operation of the project would include the potential to pump groundwater from below the Colorado River's Accounting Surface of 234 feet amsl. Groundwater monitoring and reporting activities required per MM WAT-3 (Groundwater Drawdown Monitoring and Reporting Plan) would facilitate the determination of whether operational water is pumped from below the Accounting Surface and if so, that conservation actions required per MM WAT-7 (Colorado River Water Supply Plan) would be implemented.

Surface Water and Drainage Patterns

Operation and maintenance of the project would include the routine maintenance and occasional repair (as needed) of infrastructure installed during the construction period, including occasional re-grading and/or re-graveling of access roads. Operation and maintenance would not introduce new infrastructure or alter existing surface water and drainage patterns beyond what is completed during the construction period. As described above (see "Groundwater Recharge"), the PV panels and arrays may result in a "drip line" effect where runoff from the panels and arrays is concentrated on the lowest edge of the infrastructure, but this effect would occur as localized drainage pattern alternations. Operation and maintenance would not substantially alter existing drainage patterns or result in substantial erosion, siltation, or flooding on or off site.

State Jurisdictional Drainages. Operational effects of the project to jurisdictional drainages are addressed in Sections 4.3 (Biological Resources – Vegetation) and 4.4 (Biological Resources – Wildlife) of this EIS. Potential effects during operation and maintenance are anticipated to be less than during construction due to a decreased necessity for earth-disturbing activity.

Stormwater Drainage Systems

Operation and maintenance of the project would not introduce any new stormwater drainage system(s). As with the potential construction effects described above, operation and maintenance activities would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems.

Operational activities would include regular inspection and maintenance of project infrastructure. The O&M building would include a septic system and leach field, which would be permitted through Riverside County, and would be pumped regularly, with waste transported off site for disposal by a licensed waste treatment contractor. Panel washing activities would occur two to three times per year, but only the quantity of water required to remove dirt and debris from the panels would be applied (estimated to be 1.1 gallons per panel). Operation and maintenance of the project would not provide substantial additional sources of polluted runoff.

Flood Hazard Areas

The *Preliminary Flood Plain & Hydrology Analysis* prepared for the project area determined that surface water flows resulting from a 100-year storm event exceed three to five feet in depth (PHB & Associates 2009). The presence of project infrastructure during the operational phase of the project may result in scouring effects and/or localized re-direction of surface flow; however, as described above and in compliance with MM WAT-4 (Surface Water Protection Plan and Drainage Design Specifications) and MM WAT-8 (Flood and Erosion Structure Damage Protection), project features would be designed to withstand flood flows and BMPs would be implemented during construction to avoid or minimize potential effects of flooding. Operation and maintenance of the project would not introduce new infrastructure or activities with the potential to impede or redirect flood flows such that new effects would occur.

Water Quality

Degradation of surface water quality and/or groundwater quality could occur through the effects of sedimentation, and/or through the accidental release of hazardous materials. Soil-disturbing activities that would occur during operation and maintenance of the project would be minimal, characterized by road improvements or repairs as necessary to maintain access throughout the site, and the transport of vehicles and equipment throughout the site as necessary to regularly inspect project infrastructure. These activities would not introduce substantial new potential to result in soil erosion (transport) and sedimentation (delivery) that could degrade water quality. Regarding the potential for operational and maintenance activities to result in the accidental release of potentially hazardous materials, as described above, project infrastructure would be regularly inspected to minimize and/or avoid the potential for such leaks to occur.

Over the lifetime of the project, panel-washing activities would occur two to three times per year, requiring an estimated 26.02 to 39.02 afy of water, which includes the high-TDS reject water that would be generated by the RO system. This operational water would be pumped from the CVGB using the same groundwater well(s) used during construction of the project. It is anticipated that water used to wash the PV panels during project operation would need to be of a certain quality, and water obtained from the CVGB may need to be treated prior to application on the panels. However, the use of water to clean panels during operation would not degrade surface or groundwater quality in the area.

Operation and maintenance of the project would not introduce substantial new potential for water quality effects to occur.

Indirect Effects

The types of indirect effects to water resources that could occur as a result of operation and maintenance of Alternative 4 are the same as described above under "Construction," but are less likely to occur during operations and maintenance due to the decreased water supply requirements, decreased ground-disturbing activities, and decreased use of hazardous materials. The same mitigation measures described above would be applied to minimize or avoid potential indirect effects to water resources.

Decommissioning

Decommissioning of the project would occur in compliance with a decommissioning plan to be developed by the Applicant and submitted to the BLM for review and approval (enXco 2011a). Decommissioning of the project may range from temporary "mothballing" to complete removal of equipment and restoration of the land to BLM approved specifications (enXco 2011a). For the purposes of this analysis of effects on water resources, it is assumed that decommissioning would include complete removal of project infrastructure and restoration of the site.

Direct Effects

Groundwater Supply and Recharge

No water requirements associated with decommissioning the project have been identified. However, it is reasonably anticipated that a water source would be required for soil conditioning and dust control associated with earth-disturbing activities that would occur during decommissioning, including but not limited to the removal of concrete foundations, backfilling of foundation holes, and restoration of natural grade. A water source for decommissioning has not been identified; however, it is also reasonably assumed that the same water source used during construction would be used to meet decommissioning requirements. Therefore, for the purposes of this analysis it is assumed that water for decommissioning would be obtained from the CVGB.

Overdraft and Drawdown. Decommissioning would occur after an estimated 30- to 50-year lifespan of the project; prior to use of CVGB water for decommissioning purposes, an updated assessment of the basin's condition with regards to overdraft should be conducted. It is assumed that potential effects of decommissioning to overdraft and drawdown would be similar to the effects described above for project construction. It is anticipated that the decommissioning plan would include measures and BMPs to monitor groundwater level trends and avoid or minimize overdraft and drawdown.

Recharge. As described in the discussion of construction effects, new impervious surfaces resulting from new infrastructure could affect the rate and distribution of surface water percolation/infiltration to underlying groundwater; removal of this infrastructure during decommissioning activities would facilitate restoration of pre-construction recharge rates and patterns. Restoration of the site would include returning the site as close as reasonably possible to pre-construction conditions suitable for current adjacent land. Therefore, potential effects of decommissioning activities to groundwater recharge are anticipated to be beneficial.

Construction Site Dewatering. Decommissioning of the project would likely include excavation activities to remove infrastructure and foundations across the project site. These excavation activities would include the potential to encounter perched groundwater, or unconfined shallow

groundwater, which would require dewatering activities to avoid potentially adverse effects to local groundwater resources. These effects would be the same as described above for construction of the project.

Water Supply Reliability. Although no water supply requirements have been identified for decommissioning of the project, it is reasonably assumed that water would be required for soil conditioning and dust control. The WSA included as Appendix E to this EIS indicates that sufficient water supply is anticipated to be available for the project, and the project would not result in adverse effects to water supply reliability. If decommissioning results in pumping of any groundwater that would be replaced by Colorado River water, conservation actions would be implemented to "replace" the groundwater on an acre-foot by acre-foot basis per MM WAT-7.

Surface Water and Drainage Patterns

Decommissioning activities would include removal of all infrastructure introduced during the construction phase, and the removal of infrastructure from the project site would facilitate restoration of the existing, pre-construction drainage patterns, characterized by ephemeral drainages which contain water only after precipitation events sufficient to produce runoff. The decommissioning plan that would be implemented for the project is anticipated to include BMPs to avoid adverse effects to surface water and drainage patterns during the decommissioning process, and to restore drainages across the site. Such BMPs may include erosion control measures to avoid and/or minimize potential adverse effects associated with alterations to surface water drainage patterns that could result in erosion or siltation on or off site. Decommissioning of the project would not substantially alter the existing drainage pattern of the site or area or substantially increase the rate or amount of surface runoff such that erosion, siltation, or flooding on or off site would occur, and no additional mitigation measures are required.

State Jurisdictional Drainages. Decommissioning effects of the project to jurisdictional drainages are addressed in Sections 4.3 (Biological Resources - Vegetation) and 4.4 (Biological Resources - Wildlife) of this EIS. Decommissioning effects are anticipated to be greater than operational effects due to an increased need for earth-disturbing activities to remove project infrastructure.

Stormwater Drainage Systems

Decommissioning of the project would not introduce a new stormwater drainage system and would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems. Hazardous materials would be handled and disposed of during decommissioning activities, and would introduce the potential for adverse water quality effects to occur. However, all hazardous and potentially hazardous materials would be handled, stored, and disposed of in compliance with a decommissioning plan to avoid and/or minimize adverse effects, and decommissioning activities would therefore not provide substantial additional sources of polluted runoff.

Flood Hazard Areas

Decommissioning of the project would remove infrastructure from the site, and would remove potential effects introduced during construction of the project associated with placing structures such that flood flows could be impeded or redirected.

Water Quality

Degradation of surface water quality and/or groundwater quality could occur through the effects of sedimentation, and/or through the accidental release of hazardous materials. Soil-disturbing activities that would occur during decommissioning of the project, including excavation and grading, would have the potential to result in erosion and sedimentation that could degrade water quality. This effect would be most likely to occur if a storm event occurs during decommissioning activities, while disturbed soils are exposed and/or have not yet been re-vegetated. It is anticipated that the project's decommissioning plan would require BMPs and stipulations similar to those applied during construction activities, including as related to the proper handling and storage of potentially hazardous materials. Potential water quality effects would be similar during decommissioning as during construction.

Indirect Effects

The types of indirect effects to water resources that could occur as a result of decommissioning Alternative 4 are the same as described above under "Construction." The same mitigation measures described above and presented below would be applied to minimize or avoid potential indirect effects to water resources.

Mitigation Measures

The mitigation measures listed below are required to reduce effects related to water resources.

MM WAT-1 Demonstrate compliance with water quality permits. Prior to construction, the project owner shall submit satisfactory evidence to the BLM and the Riverside County Department of Planning and Building, as applicable, that all agencies with jurisdiction over the project have been contacted and whether or not each agency requires a permit associated with water resources for the project. Such agencies and associated permits include but are not limited to those listed below.

- California Department of Fish and Game (Streambed Alteration Agreement)
- U.S. Army Corps of Engineers (Clean Water Act Section 404)
- State Water Resources Control Board / Colorado River Basin Regional Water Quality Control Board (Clean Water Act Section 402/401 permits; Waste Discharge Requirements)

Where a permit is required, the project owner shall provide a copy of all the conditions required by that agency to BLM, for actions on BLM lands, and to the Riverside County Department of Planning and Building, for actions on County lands. The BLM and the County, as applicable, shall review these conditions for consistency with proposed plans. During construction, the Environmental Monitor shall be aware of these other agency conditions and if non-compliance is observed, shall contact the affected agency. For post-construction measures, the Environmental Monitor shall notify the affected agency should non-compliance be observed. The project owner shall maintain and make available on site at all times an approved copy of all required permits.

MM WAT-2 Alternative Water Source and Groundwater Offsets. For any year during which it is projected that the Chuckwalla Valley Groundwater Basin (CVGB) would be affected by overdraft conditions, the project owner shall avoid using CVGB water to meet water supply requirements associated with construction, operation and maintenance, or decommissioning of the Desert Harvest Solar Project (DHSP). The purpose of this measure is to avoid contributions of the project to overdraft conditions in the CVGB, regardless of the magnitude of the project's incremental contribution to such conditions.

This measure shall be implemented based on projections of overdraft conditions provided in Table 4.20-5 (Estimated Cumulative Budget for the Chuckwalla Valley Groundwater Basin (afy)) of this EIS and in the Water Supply Assessment (WSA) included as Appendix E, or based on revised projections of overdraft conditions provided by the project owner (or a representative of the project owner) to the BLM Hydrologist in the form of a revised WSA prepared in accordance with Senate Bill 610, and approved of by the BLM Hydrologist. The project owner may choose to revise projections of overdraft conditions if the cumulative projects scenario upon which existing overdraft projections are based changes such that certain water-consuming projects in the cumulative scenario would not occur and associated overdraft conditions also would not occur, or would be less substantial than currently projected. It is reasonable and appropriate to use projections of overdraft as the trigger for this mitigation measure, as opposed to using actual data obtained through groundwater monitoring, because the presence of overdraft requires long-term monitoring efforts in order to identify; although the BLM is presently (at the time of publication of this Final EIS) implementing a groundwater monitoring program throughout the CVGB, monitoring results that would be useful towards characterizing overdraft in the basin will not be available for several years, at least, and therefore would not be usable for the proposed project or the purposes of this mitigation measure.

The WSA included as Appendix E to the EIS projects that overdraft conditions in the CVGB may occur during each year of project operations, through 2043, to varying degrees of severity and decreasing over time. In order to ensure that the DHSP does not contribute to overdraft conditions during these projected years of overdraft, or revised projections of overdraft years provided by the project owner and approved of by the BLM, the project owner may either purchase water from an out-of-basin source, or the project owner may implement in-basin water conservation measures to replace any water consumed from the CVGB on an acre-foot by acre-foot bases. Each of these options is described below. The project owner shall verify implementation of these actions in an annual report to the BLM.

- **Out-of Basin Water Source.** The project owner may purchase water supply for the DHSP from a water purveyor which delivers non-CVGB water, such as California State Water Project water that is delivered by a purveyor in the project area, per contractual agreement between the project owner and the purveyor. Out-of-basin water sources may include water obtained through the Hayfield Lake / Chuckwalla Valley Groundwater Conjunctive Use Project administered by the Metropolitan Water District (MWD) of Southern Cali-

fornia; although the Hayfield Valley aquifer is part of the Orocopia Valley Groundwater Basin, which provides inflow to the CVGB, this Conjunctive Use Project is a managed supply under MWD jurisdiction and therefore would not be considered direct use of CVGB water. Out-of-basin water sources may include water delivered to the project site by MWD or another water purveyor from any source other than the CVGB.

- **In-Basin Water Conservation.** CVGB water may be consumed towards project purposes only if all CVGB water consumed is "replaced" on an acre-foot by acre-foot basis through implementation and/or participation by the project owner in a Forbearance and Fallowing Program within the CVGB, as described below.
  - *Implement a Forbearance and Fallowing Program*. The project owner may enter into a contractual agreement with willing land owner(s) and/or lessee(s) to fallow fields which are currently irrigated. The contract shall specify the duration of fallowing, during which time no water may be applied to the contracted field. Each field which is fallowed under this program must be located within the CVGB and must receive its water supply from the CVGB. The land owner(s) and/or lessee(s) cannot be simultaneously contracting with another entity to fallow the same fields, unless agreed upon by all parties.
  - *Participate in a Forbearance and Fallowing Program*. The project owner may participate in a program implemented within the CVGB by another entity, where such a program meets the requirements described in the preceding bullet, and each field fallowed through this collaborative effort is located within the CVGB and receives its water supply from the CVGB.

The out-of-basin water source and in-basin water conservation measures described above may be implemented individually or in congruence with each other, as is most effective to ensure that no net consumption of CVGB water occurs during years of projected overdraft conditions. The project owner shall submit an annual report to the BLM which verifies that one or more of the actions described above are implemented to ensure that no net consumption of CVGB water occurs during any year in which the CVGB is projected to be in overdraft conditions, regardless of the DHSP's incremental contributions to such conditions, and based upon either the overdraft projections identified in the WSA included as Appendix E to this EIS, or based upon revised overdraft projections produced by the project owner and approved of by the BLM Hydrologist.

The applicability of MM WAT-3 and MM WAT-7 are contingent upon how this MM WAT-2 is implemented, as described below.

- If groundwater pumped from the CVGB is used in conjunction with an out-of-basin water source and in-basin water conservation measures, the DHSP Environmental Monitor(s) shall verify that all groundwater monitoring and reporting requirements identified in MM WAT-3 (Groundwater Drawdown Monitoring and Reporting Plan) and MM WAT-7 (Colorado River Water Supply Plan) are implemented.

- If an out-of-basin water source is used to meet all of the DHSP water supply requirements and no water is pumped from the CVGB or a basin tributary to the CVGB during construction, operation and maintenance, or decommissioning of the DHSP, then MM WAT-3 and MM WAT-7 would not be necessary. Water supply provided by MWD from the Hayfield / Chuckwalla Valley Groundwater Conjunctive Use Project would be considered an out-of-basin water source despite connectivity of the Hayfield Valley and Orocopia Valley to the Chuckwalla Valley, because this program is actively managed by MWD towards the purpose of water supply reliability.

The implementation of MM WAT-2 could result in adverse environmental impacts associated with the delivery of an out-of-basin water source to the DHSP site, including effects to transportation and public access, noise, air quality, energy and minerals, climate change, and wildlife. The daily water demand during construction of the project is estimated to range from a low of 125,000 gallons per day (gpd) to a peak of an estimated 600,000 gpd. Assuming the project used 12,000 gallon trucks to transport the water, between 10 and 50 round trip truck trips per day would be required to transport the water to the site during construction. During operations, the project would use between 26 and 39 afy. This would require between 2 and 3 round-trip truck trips per day, if all water needed for project operation were trucked from offsite. Potential adverse effects to the aforementioned environmental issue areas are summarized below.

- **Transportation and Public Access.** The traffic study for the DHSP noted that the estimated truck delivery for the project varied throughout construction but was estimated to average 20 round trip truck trips each day. As stated above, the daily water demand would increase this daily truck traffic by 10 to 50 round trips. This increase in truck traffic would potentially impact the road level of service (LOS) and increase the roadway damage and hazards. However, as noted in Section 4.18.6, the only project trips relevant to the quantitative traffic analysis and to the road level of service are those that occur during the AM and PM peak traffic hours. While it is anticipated that multiple daily truck trips would be required to transport the off-site water to the DHSP site, the truck trips would be spaced throughout the day. Typical construction work schedules are expected to be 8 hours per day Monday through Friday. This would result in between 1 to 6 additional round trip truck trips per hour. Given the existing LOS, LOS A, and the estimated LOS with the DHSP, LOS B, an additional 1 to 6 round trip truck trips per hour would not be expected to reduce the level of service during the AM and PM peak traffic hours. During operations, an additional 2 to 3 round trip truck trips would be required per day and would not be expected to impact the existing LOS.
- **Noise.** Water trucks would travel north along SR-177 and then continue north along Kaiser Road to the main entrance of the project site. Water trucks would require between 10 to 50 round trip truck trips per day which would increase the hourly truck traffic by between 1 to 6 additional round trip truck trips. The additional truck trips would increase traffic noise levels along Kaiser Road which are already considered to be noticeable with the DHSP construction traffic; see Section 4.12.6. At 50 feet from the centerline of Kaiser Road, noise levels from the DHSP traffic and the additional 1 to 6 round trip truck trips per hour would be within Riverside County's conditionally acceptable range for rural residential land uses. During operations, an additional 2 to 3 round trip truck trips would be required per day and would be expected to result in a minimal increase in noise.

- **Air Quality.** Water truck trips would result in exhaust air pollutant emissions as a result of motor vehicle fuel combustion. Fugitive dust emissions would be generated from vehicle trips on paved/unpaved roads. The emissions would contribute to the exceedance of the emissions thresholds for VOC, NOx, CO, and PM10. However, with the implementation of required mitigation for the DHSP, this impact would be reduced. Mitigation measures for the DHSP would require the project owner to develop a Fugitive Dust Control Plan in compliance with SCAQMD Rule 403 to reduce PM10 and PM2.5 emissions during construction. During operations, an additional 2 to 3 round trip truck trips would be required per day and would be expected to result in a minimal increase in air emissions.
- **Energy and Minerals**. An estimated 10 to 50 round trip truck trips per day during construction and an estimated 2 to 3 round trip truck trips per day during operations, would also require the use of energy resources in the form of transportation and potentially energy used to pump the water. Fuels for the water trucks and potentially pumps are readily available in the project study area, and the consumption of such resources during construction would not constitute a substantial effect.
- **Climate Change**. Water truck trips would result in direct greenhouse gas emissions from fuel combustion during construction and operations. The total annualized direct GHG emissions from the water truck trips would occur with those of construction of the DHSP which are well below the presumptive threshold for direct emissions established in the Council on Environmental Quality's draft guidance for federal agencies; see Section 4.5.7. Therefore, the water truck trips would not result in an unavoidable adverse GHG effects.
- **Biological Resources – Wildlife**. An estimated 10 to 50 round truck trips per day during construction and 2 to 3 truck trips per day during operations would increase the potential for direct injury or mortality of wildlife by vehicles, particularly the federally and state-listed desert tortoise. Designated critical habitat for the desert tortoise occurs adjacent to the west side of Kaiser Road. However, the projected increase in truck trips during construction would not result in a substantial hourly increase in overall traffic (hourly increase of 1 to 6 round trips), and would therefore not constitute a substantial increase in effects to wildlife analyzed in Section 4.4. Similarly, an additional 2 to 3 truck trips per day during operations would not substantially increase traffic effects to wildlife (including desert tortoise).

Water transported to the project site from an off-site source would be stored in an on-site storage tank(s). If an off-site groundwater supply is used for the project, potential impacts associated with traffic, noise, and air quality would be comparable to the potential impacts associated with use of an on-site well(s), as water obtained on-site would need to be transported and delivered to specific on-site locations. If an off-site non-groundwater supply is used for the water (such as purchased from MWD or another local purveyor), potential effects associated with transporting the supply to the project site would be comparable to as described for an off-site groundwater supply.

MM WAT-3 Groundwater Drawdown Monitoring and Reporting Plan. If groundwater is to be pumped for consumptive use in this project from either an onsite well or an offsite well that extracts water from the CVGB, the project owner shall develop and implement a Groundwater Monitoring and Reporting Plan prior to the onset of construction of the project. In the preparation and implementation of this plan, the project owner shall coordinate with the BLM and with the Colorado River Basin RWQCB. The Groundwater Monitoring and Reporting Plan shall be pre-

pared by a qualified hydrogeologist and submitted by the project owner to the BLM for approval, and to the RWQCB for review and comment.

The Groundwater Monitoring and Reporting Plan shall provide detailed methodology for monitoring background and site groundwater levels, water quality, and flow. Monitoring shall be performed during pre-construction, construction, and operation of the project, with the intent to establish pre-construction and project-related groundwater level and water quality trends that can be quantitatively compared against observed and simulated trends near the project pumping wells and near potentially impacted existing private wells. The monitoring wells shall include locations up-gradient, lateral, and down-gradient of all project supply wells and a minimum of three off-site down-gradient wells. Water quality monitoring shall include annual sampling and testing for Total Dissolved Solids (TDS), which include minerals, salts, and metals dissolved in water. Water quality samples shall be drawn from project supply wells, one up-gradient well, and a minimum of two down-gradient offsite wells.

The Groundwater Monitoring and Reporting Plan shall include a schedule for submittal of quarterly data reports by the project owner to the BLM, for the duration of the construction period. These quarterly data reports shall be prepared and submitted to the BLM for review and approval, and shall include water level monitoring data (trend analyses) from all monitoring wells, including the up-gradient, lateral, and down-gradient wells described above.

Based on the results of the quarterly reports, the project owner and the BLM shall determine if the project's pumping activities have resulted in water level decline of five feet or more below the baseline trend at any of the monitoring wells, including nearby private wells. If drawdown of five feet or more occurs at off-site wells, the project owner shall immediately reduce groundwater pumping until water levels stabilize or recover, sustaining drawdown of less than five feet. Alternatively, the project owner shall provide compensation to the well owner, including reimbursement of increased energy costs, or deepening the well or pump setting. To be eligible for such compensation, a well owner must provide documentation of the well location and construction, including pump intake depth, and that the well was constructed and usable before project pumping was initiated. Compensation by the project owner to private well owner(s) for adverse effects to private wells shall be determined in coordination with the BLM as described below.

a) If groundwater monitoring data indicate that project pumping has lowered water levels below the top of the well screen, and the well yield is shown to have decreased by 10 percent or more of the pre-project average seasonal yield, compensation shall be provided by the project owner for the diagnosis and maintenance to treat and remove encrustation from the well screen. Reimbursement shall be provided at an amount equal to the customary local cost of performing the necessary diagnosis and maintenance for well screen encrustation. If with treatment the well yield is incapable of meeting 110 percent of the well owner's maximum daily demand, dry season demand, or

annual demand, the well owner shall be compensated by reimbursement or well replacement.

b) If project pumping has lowered water levels to substantially affect well yield so that it can no longer meet its intended purpose, causes the well to go dry, or causes casing collapse, payment or reimbursement of an amount equal to the cost of deepening or replacing the well shall be provided to accommodate such effects. Payment or reimbursement shall be at an amount equal to the customary local cost of deepening the existing well or constructing a new well of comparable design and yield (only deeper). The demand for water, which determines the required well yield, shall be determined on a per-well basis using well owner interviews and field verification of property conditions and water requirements compiled as part of pre-project well reconnaissance. Well yield shall be considered to be adversely affected if the well is incapable of meeting 110 percent of the well owner's maximum daily demand, dry-season demand, or annual demand, assuming the pre-project well yield documented by pre-project well reconnaissance met or exceeded these yield levels.

c) In the event that groundwater is lowered as a result of project pumping to an extent where pumps are exposed but well screens remain submerged, the pumps shall be lowered to maintain production in the well. The project shall reimburse the impacted well owner for the costs associated with lowering pumps.

d) If project-related pumping results in the lowering of groundwater levels such that well screens or pump intakes are exposed, and pump lowering is not an option, affected wells shall be deepened or new wells installed. The project owner shall reimburse the affected well owner(s) for all costs associated with deepening existing wells or constructing new wells.

The Groundwater Monitoring and Reporting Plan shall also include a schedule for submittal of annual data reports by the project owner to the BLM, for the first five years of the project (including the construction period). These annual data reports shall be prepared and submitted to the BLM for review and approval, and shall include at a minimum the following information:

- Daily usage, monthly range, and monthly average of daily water usage in gallons per day;
- Total water used on a monthly and annual basis in acre-feet; summary of all water level data; and
- Identification of trends that indicate potential for off-site wells to experience deterioration of water level.

The BLM shall determine whether groundwater wells surrounding the project site and project supply well(s) are affected by project activities in a way that requires additional mitigation and, if so, shall determine what measures are needed. After the first five years of the project, the project owner and the BLM shall jointly evaluate the effectiveness of the Groundwater Monitoring and Reporting Plan and determine if monitoring frequencies or procedures should be revised or eliminated.

The siting, construction, operation, maintenance, and remediation of any groundwater well associated with the project shall conform to specifications contained in the California Department of Water Resources Bulletins #74-81 and #74-90.

MM WAT-4 Surface Water Protection Plan and Drainage Design Specifications. A Surface Water Protection Plan (SWPP) shall be developed for the project and shall include BMPs to ensure that drainage design at the project site would minimize potential adverse effects associated with groundwater recharge, drainage pattern alterations, and water quality. The SWPP shall achieve the same objectives as a Stormwater Pollution Prevention Plan (SWPPP) under the Clean Water Act (CWA), and the SWPP may substitute for a SWPPP if the project is not subject to Section 402 of the CWA. The SWPP shall be adhered to during construction and operation of the project, as applicable. BMPs required by the SWPP shall include, at a minimum, the following:

- Erosion minimizing efforts such as straw wattles, water bars, covers, silt fences, and sensitive area access restrictions (for example, flagging) shall be installed before clearing and grading begins;
- Mulching, seeding, or other suitable stabilization measures shall be used to protect exposed areas during construction activities;
- Groundcover for the new substation shall be comprised of a pervious or high-roughness material (for example, gravel) to the maximum extent feasible;
- Downstream drainage discharge points shall be provided with erosion protection and designed such that flow hydraulics exiting the site mimic the natural condition as much as possible;
- Drainage from impervious surfaces such as roads, driveways, and buildings shall be directed into channel(s), drainage basin(s), or depression(s), as applicable to perpetuate the natural drainage patterns as much as possible;
- Mass grading and contouring shall be done in a way to direct surface runoff towards the above-referenced basin(s) and/or depression(s);
- Straw wattles (or comparably effective devices [as determined by the on-site Civil Engineer, in consultation with the Environmental Monitor]) shall be placed on the downslope sides of the proposed work which would direct flows into the above-referenced basin(s) and/or depression(s);
- All erosion control materials shall be biodegradable and natural fiber;
- During construction/ground disturbing activities and operation, all vehicles and equipment, including all hydraulic hoses, shall be maintained in good working order so that they are free of any and all leaks that could escape the vehicle or contact the ground, and to ensure that any leaks or spills during maintenance or storage can be easily and properly removed;
- Prior to and during construction, an environmental training program shall be established to communicate environmental concerns and appropriate work

practices, including spill prevention and response measures to all field personnel; and

- Storage of fuels and hazardous materials shall be prohibited within 200 feet of surface water features and private groundwater supply wells, and within 400 feet of community or municipal groundwater supply wells (if it is determined that such wells exist on or in close proximity to the project site).

Notice of Intent (NOI) packages shall be filed by the project owner with the State Water Resources Control Board (SWRCB) and the Colorado River Basin Regional Water Quality Control Board (RWQCB), and a Waste Discharge Identification Number (WDID) for the project shall be obtained prior to the issuance of construction permits. The SWPP shall be stored at the construction site for reference by construction personnel and for inspection review. All BMPs required by the SWPP shall be checked and maintained regularly and after all larger storm events. All remedial work shall be done immediately after discovery to ensure that erosion/sedimentation control devices remain in good working order. Proper implementation shall be verified by the Environmental Monitor.

MM WAT-5 **Construction Site Dewatering Management.** If groundwater is unexpectedly encountered during construction, operation, or decommissioning of the project, dewatering activities shall be performed in compliance with the California Stormwater Quality Association (CASQA) Handbook for Construction or other similar guidelines, as approved by the BLM. The project owner shall notify the BLM and the Colorado River Basin RWQCB at the onset of dewatering activities, and shall submit written descriptions of all executed dewatering activities, including steps taken to return encountered groundwater to the subsurface, upon the completion of dewatering activities. The Environmental Monitor shall regularly inspect grading activities for groundwater exposure. Should groundwater be encountered, compliance with dewatering efforts shall be verified by the Environmental Monitor.

MM WAT-6 **Drought Water Management and Water Conservation Education Programs.** Prior to the onset of construction of the project, a Drought Water Management Program shall be prepared by the project owner and submitted to the BLM for approval. The Drought Water Management Program shall provide guidelines on how all future water use will be managed during "severe" drought year(s). If a "severe" drought condition occurs during construction or operation of the project, restricted water usage measures shall be implemented per the Drought Water Management Program until it is shown satisfactorily to the BLM that the "severe" drought condition no longer exists. The Drought Water Management Program shall include at a minimum the following measures:

- The definition of a "severe" drought year (as defined by the National Oceanic and Atmospheric Administration's (NOAA) Palmer Drought Severity method or other similarly recognized methodology);
- Identification of general measures available to reduce water usage for future development (to be refined as needed for each use approved);
- Identification of specific measures to be applied for landscape watering; and

- Determination of appropriate early triggers to determine when "severe" drought conditions exist and process for initiating additional water conservation measures.

In addition to the Drought Water Management Program and prior to the onset of construction of the project, the project owner shall also develop a Water Conservation Education Program and submit this program to the BLM for review and approval. The Water Conservation Education Program shall be developed by an appropriate expert in water conservation, and shall include guidance for all future operators and employees of the project on how to adjust water usage during drought periods. The Water Conservation Education Program shall specify the means by which this guidance will be disseminated to any future operators and employees of the project.

For any year that a “severe drought” state has been recognized, the project owner shall submit a letter to the BLM by November 1 of that year identifying what measures were implemented to conserve water and to provide water conservation education, as well as the effectiveness of such measures. The Drought Water Management Program and Water Conservation Education Program shall be implemented throughout the construction, operation, and decommissioning phases of the project.

MM WAT-7 **Colorado River Water Supply Plan.** Prior to the onset of water-consuming construction activities, the project owner shall prepare a Colorado River Water Supply Plan (Plan) and submit this Plan to the BLM and the Colorado River Basin Regional Water Quality Control Board (RWQCB) for review and approval, and to the Metropolitan Water District of Southern California (MWD) for review and comment. The Plan shall identify measures that will be taken to replace water on an acre-foot to acre-foot basis, if the project results in consumption of any water from below the Colorado River Accounting Surface, towards the purpose of ensuring that no allocated water from the Colorado River is consumed without entitlement to that water.

The Plan shall describe that groundwater monitoring activities and quarterly data reports required in compliance with MM WAT-3 (Groundwater Drawdown Monitoring and Reporting Plan) will be closely reviewed for depth to groundwater information, and proximity of the depth of project-related groundwater pumping to the Colorado River Accounting Surface of 234 feet amsl. The Plan shall further describe that if project-related groundwater pumping draws water from below 234 feet amsl, the following shall occur:

1) All groundwater pumping shall immediately cease,
2) Based on groundwater monitoring data, the quantity of groundwater pumped from below 234 feet amsl shall be recorded, and
3) The project owner shall implement water conservation/offset activities to replace Colorado River water on an acre-foot by acre-foot basis.

In order to effectively implement item (3) above, the Plan shall include the following information:

- Identification of water conservation / offset activities to "replace" the quantity of water diverted from the Colorado River;
- Identification of any required permits or approvals and compliance of conservation / offset activities with CEQA and NEPA;
- An estimated schedule of completion for each identified activity;
- Performance measures that would be used to evaluate the amount of water replaced by each identified activity; and
- Monitoring and reporting protocol to ensure that water conservation / offset activities are effectively implemented and achieve the intended purpose of replacing Colorado River water diversions.

The project owner shall collaborate with the BLM, the Colorado River RWQCB, and/or the MWD, as appropriate, in order to identify acceptable water conservation / offset activities for the purposes of the Plan, with "acceptable" activities being those that are considered environmentally, physically, and economically feasible, while also effectively resulting in the replacement of Colorado River water. A number of water conservation / offset activities that have been considered and determined to not be viable and therefore may not be identified in the Plan include the following:

- Irrigation improvements in the Palo Verde Irrigation District (water unused by the PVID becomes available to MWD per the 2003 Colorado River Water Delivery Agreement executed by MWD, the Secretary of the Interior, Imperial Irrigation District, Coachella Valley Water District, and San Diego County Water Authority);
- Purchase of water allotments allocated by the Department of the Interior (all Colorado River water available to California in shortage, normal, or Intentionally Created Surplus conditions is already allocated and its use is limited to each entity's service area under executed water delivery contracts);
- Implementation of conservation programs in floodplain communities (all water unused by holders of higher priorities becomes available to MWD per the water delivery contracts which have been executed by the Department of the Interior); and
- Participation in the BLM's Tamarisk Removal Program (use of Colorado River water by phreatophytes such as tamarisk is not charged as a use of water for U.S. Supreme Court Decree accounting purposes by the U.S. Bureau of Reclamation).

If the project owner has filed an application to the U.S. Bureau of Reclamation (USBR) to obtain an allocation of water from the Colorado River and such allocation is granted, it may be used to satisfy some or all of the water conservation offsets on an acre-foot per acre-foot basis. However, the filing of an application for allocation of Colorado River water does not guarantee that such an allocation will be issued. In addition, all of California's apportionment to use of Colorado River water during shortage, normal, and Intentionally Created Surplus conditions

has already been allocated by the Department of the Interior. Therefore, unless the project owner currently holds entitlement to the use of Colorado River water, it shall not be assumed that an allocation will be granted.

If the project does not result in diversion of Colorado River water (via pumping from near (within +/- 0.84 feet at the 95-percent confidence level), equal to, or below 234 feet amsl) it will not be necessary to implement the water conservation/offset activities identified in the Colorado River Water Supply Plan. However, the Plan must be approved by the BLM prior to project-related groundwater pumping is initiated so that if at any time during the project it is determined that groundwater is being produced from below the Colorado River Accounting Surface of 234 feet amsl, the requirements described in this measure shall be immediately implemented, starting with the cessation of groundwater pumping.

The Colorado River Water Supply Plan is separate from the Groundwater Drawdown Monitoring and Reporting Plan required per MM WAT-3 and the Drought Water Management and Water Conservation Education Programs required per MM WAT-6. Therefore, this Plan must be developed, reviewed, approved of, and implemented as a separate, stand-alone document. Compliance with this measure shall be verified by the Environmental Monitor.

MM WAT-8 **Flood and Erosion Structure Damage Protection.** Aboveground project features shall be located outside of known watercourses, and shall be designed and maintained to withstand flooding and erosion hazards. Although some project features may need to be placed within 100-year floodplain boundaries, or Flood Hazard Areas identified by the Federal Emergency Management Agency, they shall be designed per applicable floodplain development guidelines, including measures such as specially designed footings to withstand flooding associated with a 100-year flood event. Channel design for flood control along the project perimeter shall be sized and designed to minimize scour and disruption to upstream and downstream hydrology, including measures to prevent headcutting, migration of channels, erosion, and downstream sedimentation, under conditions equivalent to a 100-year flood. Riprap shall be placed and maintained at the base of project infrastructure and foundations to slow the velocity of stormwater runoff. Compliance will be verified by the Environmental Monitor.

MM WAT-9 **Accidental Spill Control and Environmental Training.** Prior to the onset of construction of the project, the following specifications must be provided by the project owner to the BLM: define areas where hazardous materials would be stored, where trash would be placed, where rolling equipment would be parked, fueled and serviced, and where construction materials such as reinforcing bars and structural steel members would be stored. The project owner shall also prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and shall include an emergency response program to ensure quick and safe cleanup of accidental spills. These specifications may be included in the Surface Water Protection Plan (SWPP) described in MM WAT-4, or may be included as a separate plan. Compliance will be verified by the Environmental Monitor at the time of construction.

Residual Impacts and Unavoidable Adverse Effects

No unavoidable adverse effects to water resources would result from implementation of Alternative 4.

4.20.7 Alternative 5 – Solar Project Excluding WHMA

Under Alternative 5 the solar facility site would be constructed the same as Alternative 4, except that project components would be excluded from the WHMA.

Construction

Groundwater Supply and Recharge

The quantity of water required during construction of Alternative 5 has not been identified. However, the quantity of water required for dust suppression during construction of Alternative 4 can be extrapolated per acre of site development, to determine that dust suppression requires approximately 0.33 to 0.41 afy of water per acre of site development. Alternative 5 would develop 1,161 acres, requiring approximately 384.4 to 480.5 afy of water for dust suppression, which is approximately four percent less than the water supply requirement associated with Alternative 4; as such, Alternative 5 would require 15.6 to 19.5 afy less than Alternative 4.

Tables 3.20-2 and 3.20-3 identify several different water budget scenarios that may be present in the CVGB, ranging from a positive budget of 2,623 acre-feet to a negative (overdraft) budget of 7,912 acre-feet. As such, the CVGB may or may not be currently in a state of overdraft; due to this uncertainty, mitigation measures are required. The construction water requirement associated with Alternative 5 is less than that for Alternative 4; however, this difference is minimal when compared to overall construction water requirements, and the nature and magnitude of potential effects to groundwater supply and recharge under Alternative 5 are essentially the same as under Alternative 4. The same mitigation measures identified above for Alternative 4 are required for Alternative 5 in order to minimize or avoid potential effects to groundwater supply and recharge.

Surface Water and Drainage Patterns

Alternative 5 would encompass approximately 1,161 acres, 47 fewer than Alternative 4, and would clear 107 acres of vegetation, the same as Alternative 4. The area permanently covered by at-grade items under Alternative 5 would be 10 acres, which is also the same as Alternative 4. Therefore, although Alternative 5 would avoid development on 47 acres of the site, the amount of new impervious surfaces and compacted soils introduced under Alternative 5 would be the same as described above for Alternative 4. Potential impacts to surface water and drainage patterns would be the same as previously described. The same mitigation measures identified above for Alternative 4 are required for Alternative 5 in order to minimize or avoid potential effects on surface water and drainage patterns.

Stormwater Drainage Systems

No stormwater drainage system exists at the Alternative 5 site. As with Alternative 4, construction of Alternative 5 would include implementation of a SWPP, including BMPs specified in

MM WAT-4. Potential effects associated with the contribution of polluted stormwater runoff would be the same under Alternative 5 as under Alternative 4.

Flood Hazard Areas

The removal of 47 acres from development under Alternative 5 would avoid the need for construction activities to occur across 47 acres that may experience flood flow. With consideration to the overall site, this difference is minimal. Potential effects of Alternative 5 associated with flood flows would be essentially the same as those of Alternative 4, and the mitigation measures identified above are required.

Water Quality

Construction of Alternative 5 would avoid the potential for degradation of surface water quality and/or groundwater quality to occur on the 47 acres that would be avoided. However, the same types of construction activities would occur under this alternative, and with consideration to the overall project, the nature and magnitude of potential effects on water quality that would occur under Alternative 5 would be the same as under Alternative 4.

Operation and Maintenance

Operational and maintenance activities required under Alternative 5 would be the same as required for Alternative 4, including as relevant to groundwater supply and recharge, surface water and drainage patterns, stormwater drainage systems, flood hazard areas, and water quality.

Decommissioning

Decommissioning of Alternative 5 would not require the removal of infrastructure on the WHMA portion of the site eliminated under this alternative, and decommissioning would not result in soil disturbance on this portion of the site, thereby avoiding potential effects associated with water quality degradation from erosion and sedimentation on the WHMA portion of the site. With consideration to the overall project, this difference would not alter the nature and magnitude of potential effects on water resources, which would be the same as described above for Alternative 4.

Mitigation Measures

All mitigation measures listed in Section 4.20.6 are required to minimize or avoid potential effects on water resources resulting from Alternative 5.

Residual Impacts and Unavoidable Adverse Effects

No unavoidable adverse effects on water resources would result from implementation of Alternative 5.

4.20.8 Alternative 6 – Reduced Footprint Solar Project

Similar to Alternative 5, Alternative 6 would also develop a smaller area of the solar facility site than proposed under Alternative 4. Construction activities would occur on the same schedule as for Alternative 4 and would use the same project boundaries as Alternative 4, except that it would exclude the 164-acre southern parcel of the project.

Construction

Groundwater Supply and Recharge

The quantity of water required during construction of Alternative 6 has not been identified. However, the quantity of water required for dust suppression during construction of Alternative 4 can be extrapolated per acre of site development, as with Alternative 5. Alternative 6 would develop 1,044 acres, requiring approximately 348.3 to 435.4 afy of water for dust suppression, which is 51.6 to 64.6 afy less, or approximately 13 percent less, than Alternative 4. The estimated safe yield of the CVGB is to be 2,623 afy; as such, sufficient groundwater supply is available to meet the construction water requirements of Alternative 6. Although the construction water requirement associated with Alternative 6 is approximately 13 percent less than that for Alternative 4, this difference is not substantial when compared with overall construction water requirements, and the nature and magnitude of potential effects on groundwater supply and recharge under Alternative 6 are essentially the same as under Alternative 4. The same mitigation measures identified above for Alternative 4 are required for Alternative 6 in order to minimize or avoid potential effects on groundwater supply and recharge.

Surface Water and Drainage Patterns

Alternative 6 would encompass approximately 1,044 acres, 164 fewer than Alternative 4. Construction of Alternative 6 would clear slightly fewer acres of vegetation than Alternative 4, and result in permanent coverage by at-grade items over slightly fewer acres than Alternative 4. These differences in ground disturbance and infrastructure would not substantially alter potential effects on surface water and drainage patterns. Potential effects on surface water and drainage patterns would be the same as previously described. The same mitigation measures identified above for Alternative 4 are required for Alternative 6 in order to minimize or avoid potential effects on surface water and drainage patterns.

Stormwater Drainage Systems

No stormwater drainage system exists at the Alternative 6 site. As with Alternative 4, construction of Alternative 6 would include implementation of a SWPP, including BMPs specified in MM WAT-4. Potential effects associated with the contribution of polluted stormwater runoff would be the same under Alternative 6 as under Alternative 4.

Flood Hazard Areas

The removal of 164 acres from development under Alternative 6 would avoid the need for construction activities to occur across 164 acres that may experience flood flow. With consideration to the overall site, this difference is minimal. Potential effects of Alternative 6 associated with flood flows would be essentially the same as those of Alternative 4, and the mitigation measures identified above are required.

Water Quality

Construction of Alternative 6 would avoid the potential for degradation of surface water quality and/or groundwater quality to occur on the 164 acres that would be avoided. However, the same types of construction activities would occur under this alternative and with consideration to the

overall project, the nature and magnitude of potential effects on water quality that would occur under Alternative 6 would be the same as under Alternative 4.

Operation and Maintenance

Operational and maintenance activities required under Alternative 6 would be the same as required for Alternative 4, including as relevant to groundwater supply and recharge, surface water and drainage patterns, stormwater drainage systems, flood hazard areas, and water quality.

Decommissioning

Decommissioning of Alternative 6 would not require the removal of infrastructure on the southern portion of the site eliminated under this alternative, and decommissioning would not result in soil disturbance on this portion of the site, thereby avoiding potential effects associated with water quality degradation from erosion and sedimentation. With consideration to the overall project, this difference would not alter the nature and magnitude of potential effects on water resources, which would be the same as described above for Alternative 4.

Mitigation Measures

All mitigation measures listed in Section 4.20.6 are required to minimize or avoid potential effects on water resources resulting from Alternative 6.

Residual Impacts and Unavoidable Adverse Effects

No unavoidable adverse effects on water resources would result from implementation of Alternative 6.

4.20.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet. Construction activities would occur on the same schedule as for Alternative 4 and would use the same project boundaries as Alternative 4, except that it would exclude the 155-acre southern parcel of the project.

Construction

Groundwater Supply and Recharge

The quantity of water required during construction of Alternative 7 has not been identified. However, the quantity of water required for dust suppression during construction of Alternative 4 can be extrapolated per acre of site development. Alternative 7 would develop 1,044 acres, requiring approximately 348.3 to 435.4 afy of water for dust suppression, which is 51.6 to 64.6 afy less, or approximately 13 percent less, than Alternative 4. The estimated safe yield of the CVGB is to be 2,623 afy; as such, sufficient groundwater supply is available to meet the construction water requirements of Alternative 7. Although the construction water requirement associated with Alternative 7 is approximately 13 percent less than that for Alternative 4, this difference is not substantial when compared with overall construction water requirements, and

the nature and magnitude of potential effects on groundwater supply and recharge under Alternative 7 are essentially the same as under Alternative 4. The same mitigation measures identified above for Alternative 4 are required for Alternative 7 in order to minimize or avoid potential effects on groundwater supply and recharge.

Surface Water and Drainage Patterns

Alternative 7 would encompass approximately 1,044 acres, 164 fewer than Alternative 4. Construction of Alternative 7 would clear slightly fewer acres of vegetation than Alternative 4, and result in permanent coverage by at-grade items over slightly fewer acres than Alternative 4. These differences in ground disturbance and infrastructure would not substantially alter potential effects on surface water and drainage patterns. Potential effects on surface water and drainage patterns would be the same as previously described. The same mitigation measures identified above for Alternative 4 are required for Alternative 7 in order to minimize or avoid potential effects on surface water and drainage patterns.

Stormwater Drainage Systems

No stormwater drainage system exists at the Alternative 7 site. As with Alternative 4, construction of Alternative 7 would include implementation of a SWPP, including BMPs specified in MM WAT-4. Potential effects associated with the contribution of polluted stormwater runoff would be the same under Alternative 7 as under Alternative 4.

Flood Hazard Areas

The removal of 164 acres from development under Alternative 7 would avoid the need for construction activities to occur across 164 acres that may experience flood flow. With consideration to the overall site, this difference is minimal. Potential effects of Alternative 7 associated with flood flows would be essentially the same as those of Alternative 4, and the mitigation measures identified above are required.

Water Quality

Construction of Alternative 7 would avoid the potential for degradation of surface water quality and/or groundwater quality to occur on the 164 acres that would be avoided. However, the same types of construction activities would occur under this alternative, and with consideration to the overall project, the nature and magnitude of potential effects on water quality that would occur under Alternative 7 would be the same as under Alternative 4.

Operation and Maintenance

Operational and maintenance activities required under Alternative 7 would be the same as required for Alternative 4, including as relevant to groundwater supply and recharge, surface water and drainage patterns, stormwater drainage systems, flood hazard areas, and water quality.

Decommissioning

Decommissioning of Alternative 7 would not require the removal of infrastructure on the southern portion of the site eliminated under this alternative, and decommissioning would not result in soil disturbance on this portion of the site, thereby avoiding potential effects associated with water quality degradation from erosion and sedimentation. With consideration to the overall

project, this difference would not alter the nature and magnitude of potential effects on water resources, which would be the same as described above for Alternative 4.

Mitigation Measures

All mitigation measures listed in Section 4.20.6 are required to minimize or avoid potential effects on water resources resulting from Alternative 7.

Residual Impacts and Unavoidable Adverse Effects

No unavoidable adverse effects on water resources would result from implementation of Alternative 7.

4.20.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, no water resources effects related to construction, operations and maintenance, or decommissioning of the gen-tie line would occur.

4.20.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Under Alternative B, the proposed gen-tie would utilize transmission infrastructure developed for First Solar's Desert Sunlight Solar Farm project by sharing the approved transmission towers. The Desert Sunlight approved gen-tie has not yet been constructed, and Alternative B would require construction of this transmission line.

Construction

Direct Effects

Construction of the gen-tie would require a water supply of 6.25 afy for dust abatement. This water requirement was not included in the discussion of water supply impacts under Alternative 4, but it is addressed as a cumulative project in the WSA, because it would either be constructed under the proposed DHSP or the Desert Sunlight project. As projected in the WSA and discussed under Alternative 4, it is anticipated that the CVGB could be affected by overdraft conditions during implementation of the project. As such, additional usage of the CVGB could contribute to overdraft. However, the gen-tie water requirement of 6.25 afy is a one-time water use that would occur during the short-term construction period; this quantity of water is minimal and would not substantially affect groundwater supply or supply reliability.

Construction of Alternative B would require ground disturbance at each tower location, pulling station location, and dead-end pole location. This ground disturbance would introduce the potential for soil erosion and sedimentation which could result in water quality degradation to occur. The construction of towers would also introduce the potential for an accidental spill or leak of hazardous materials to occur, associated with the use of heavy vehicles and equipment required for construction of this infrastructure.

Indirect Effects

No indirect effects to water resources would occur as a result of construction of Alternative B.

Operation and Maintenance

Direct Effects

Operation and maintenance of the gen-tie line proposed under Alternative B would not require a water source, and would not include earth-disturbing activities or the handling/use of hazardous materials that would have potential to result in water resources effects. No direct effects would occur.

Indirect Effects

No indirect effects to water resources would occur as a result of operation and maintenance of Alternative B.

Decommissioning

Direct Effects

Decommissioning of the gen-tie line under Alternative B would be limited to the removal of the transmission cables from the existing towers. A water supply is not anticipated to be required for these activities. Earth-disturbing activities and the use of vehicles and equipment along the gen-tie line would have potential to result in water resources effects associated with the use of vehicles and equipment that could leak hazardous materials.

Indirect Effects

No indirect effects to water resources would occur as a result of operation and maintenance of Alternative B.

Mitigation Measures

MM WAT-1 (Demonstrate compliance with water quality permits) would ensure that Alternative B occurs in compliance with all applicable laws and regulations relevant to water quality, and MM WAT-9 (Accidental Spill Control and Environmental Training) would minimize the potential for an accidental spill or release of hazardous materials to occur, such as during the use of construction equipment and vehicles.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative B would not result in any unavoidable adverse effects.

4.20.12 Alternative C – Separate Transmission Towers within Same ROW

Alternative C would parallel the approved Desert Sunlight gen-tie line, and would be located on separate towers within the same, or a slightly larger, ROW. The same number of towers in a nearly identical alignment to that of First Solar's towers would be constructed. As described above for Alternative B, the Desert Sunlight project is not included in baseline conditions and therefore, Alternative B includes construction of the required gen-tie infrastructure. The construction, operation, and maintenance activities associated with Alternative C would be identical to those described for Alternative B, and the potential water resources impacts of Alternative C would therefore be identical those described for Alternative B.

Construction

Direct Effects

Potential effects of construction of Alternative C to water resources would be the same as discussed above for Alternative B.

Indirect Effects

No indirect effects to water resources would occur as a result of construction of Alternative C.

Operation and Maintenance

Direct Effects

Potential effects of operation and maintenance of Alternative C to water resources would be the same as discussed above for Alternative B.

Indirect Effects

No indirect effects to water resources would occur as a result of operation and maintenance of Alternative C.

Decommissioning

Direct Effects

Potential effects of decommissioning of Alternative C to water resources would be the same as discussed above for Alternative B.

Indirect Effects

No indirect effects to water resources would occur as a result of operation and maintenance of Alternative C.

Mitigation Measures

MM WAT-1 (Demonstrate compliance with water quality permits) would ensure that Alternative C occurs in compliance with all applicable laws and regulations relevant to water quality, and MM WAT-9 (Accidental Spill Control and Environmental Training) would minimize the potential for an accidental spill or release of hazardous materials to occur, such as during the use of construction equipment and vehicles.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative C would not result in any unavoidable adverse effects.

4.20.13 Alternative D – Cross-Valley Alignment

Construction

Construction of Alternative D would be identical to that described for Alternative C, except it would require slightly less temporary and permanent ground disturbance.

Direct Effects

Due to slightly less ground disturbance required under Alternative D, there would also be slightly less potential for water quality effects resulting from soil erosion and sedimentation or the accidental spill or release of hazardous materials to occur. All other potential effects of Alternative D to water resources would be the same as described for Alternative C.

Indirect Effects

No indirect effects to water resources would occur as a result of construction of Alternative D.

Operation and Maintenance

Operation and maintenance of Alternative D would be identical to that described for Alternative C, except it would require slightly less temporary and permanent ground disturbance.

Direct Effects

As with construction effects, the smaller amount of ground disturbance that would occur under Alternative D would also result in slightly less potential for water quality effects resulting from soil erosion and sedimentation or the accidental spill or release of hazardous materials to occur. All other potential effects of Alternative D to water resources would be the same as described for Alternative C.

Indirect Effects

No indirect effects to water resources would occur as a result of operation and maintenance of Alternative D.

Decommissioning

Decommissioning of Alternative D would be identical to that described for Alternative C, except it would require slightly less temporary and permanent ground disturbance.

Direct Effects

As with construction effects, the smaller amount of ground disturbance that would occur under Alternative D would also result in slightly less potential for water quality effects resulting from soil erosion and sedimentation or the accidental spill or release of hazardous materials to occur. All other potential effects of Alternative D to water resources would be the same as described for Alternative C.

Indirect Effects

No indirect effects to water resources would occur as a result of operation and maintenance of Alternative D.

Mitigation Measures

MM WAT-1 (Demonstrate compliance with water quality permits) would ensure that Alternative D occurs in compliance with all applicable laws and regulations relevant to water quality, and MM WAT-9 (Accidental Spill Control and Environmental Training) would minimize the poten-

tial for an accidental spill or release of hazardous materials to occur, such as during the use of construction equipment and vehicles.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative D would not result in any unavoidable adverse effects.

4.20.14 Alternative E – New Cross-Valley Alignment

Construction

Direct Effects

Potential effects of construction of Alternative E to water resources would be the same as discussed above for Alternative D.

Indirect Effects

No indirect effects to water resources would occur as a result of operation and maintenance of Alternative E.

Operation and Maintenance

Direct Effects

Potential effects of operation and maintenance of Alternative E to water resources would be the same as discussed above for Alternative D.

Indirect Effects

No indirect effects to water resources would occur as a result of operation and maintenance of Alternative E.

Decommissioning

Direct Effects

Potential effects of decommissioning of Alternative E to water resources would be the same as discussed above for Alternative D.

Indirect Effects

No indirect effects to water resources would occur as a result of decommissioning of Alternative E.

Mitigation Measures

MM WAT-1 (Demonstrate compliance with water quality permits) would ensure that Alternative D occurs in compliance with all applicable laws and regulations relevant to water quality, and MM WAT-9 (Accidental Spill Control and Environmental Training) would minimize the potential for an accidental spill or release of hazardous materials to occur, such as during the use of construction equipment and vehicles.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative D would not result in any unavoidable adverse effects.

4.20.15 Cumulative Effects

Cumulative effects on water resources resulting from the project or an alternative would occur if similar effects of other projects located within the geographic extent of this analysis, as shown in Table 4.20-3, were to occur during the same time period as those effects of the DHSP, including during the construction, operation and maintenance, and decommissioning phases.

Table 4.20-3. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Water Resources	Chuckwalla Valley Groundwater Basin	Water supply, surface drainage patterns; flooding and earth-disturbing activities that result in erosion and sedimentation	• Palen Solar Power Project • First Solar Desert Sunlight • Red Bluff Substation • Devers-Palo Verde No. 2 Transmission • Colorado River Substation Expansion • Blythe Energy Transmission Line • Desert Southwest Transmission Line • Eagle Crest Pumped Storage Startup • Genesis Solar Energy Project • Blythe Energy Transmission Line • Desert SW Transmission • Silverado Power I, II, III • Sol Orchard Solar PV Project • Desert Center 50 Solar PV Project

Geographic Scope

The geographic extent of this cumulative effects analysis for water resources effects under the proposed project and alternatives is the CVGB. This is an appropriate scope of analysis because the proposed project and alternatives are located within the surface recharge area of the CVGB, and water supply requirements associated with the construction, operation and maintenance, and decommissioning of the proposed project or an alternative would be met with water pumped from the CVGB. As mentioned above, a cumulative effect to water resources could occur if other projects within the geographic scope of this analysis occur during the same time period as effects of the proposed project or an alternative.

The temporal scope of this cumulative analysis is considered the period within which a water resources effect of the proposed project or an alternative is actively present. For instance, a cumulative effect could occur if other projects within the geographic scope contribute to overdraft conditions in the affected groundwater basin while the project-related groundwater pumping also contributes to overdraft conditions. The temporal scope of this analysis is discussed further in the following sections.

Cumulative Effects Analysis

Existing cumulative conditions relevant to water resources are comprised of projects which previously and/or currently: utilize local groundwater resources as a project water supply; substan-

tially alter surface drainage patterns; result in flooding associated with new impervious areas and/or the placement of permanent infrastructure; include earth-disturbing activities that result in erosion and sedimentation; or result in hazards and/or inundation by mudflow. Table 4.1-1 (Existing Projects Along the I-10 Corridor (Eastern Riverside County)) identifies cumulative projects within the geographic scope of analysis for the DHSP; other projects are considered in this cumulative analysis as relevant to water resources.

Groundwater Supply and Recharge

Cumulative effects to groundwater supply and recharge during construction, operation and maintenance, or decommissioning of the proposed project or an action alternative would occur if other projects drawing groundwater from the CVGB would contribute to long-term overdraft conditions while the proposed project or an alternative (Alternatives 5 through 7 and C, D, and E) is pumping groundwater for construction requirements, and/or if other projects within the surface recharge area of the CVGB introduce substantial new areas of impervious surfaces such that groundwater recharge rates and/or patterns are substantially altered. The effects analysis discussions provided in Sections 4.20-3 through 4.20-12 indicate that potential effects of the proposed project or an action alternative to groundwater supply and recharge resulting from new impervious areas, including compacted soils, would be site-specific and not substantial; therefore, cumulative effects to groundwater supply and recharge are not anticipated to result from new impervious areas. With regards to the pumping of groundwater from the CVGB, the proposed project or an action alternative would draw water from the CVGB over the lifetime of the project, as would other projects within the geographic extent of analysis.

Table 4.20-4 (Estimated Water Requirements of Cumulative Projects), below, lists the water demands associated with construction and operation of other projects within the cumulative scope that are anticipated to pump groundwater from the CVGB within the same timeframe as the proposed project or an alternative. Three of the cumulative projects listed in Table 4.20-3 are not listed in Table 4.20-4, including the following: Silverado Power I, II, III, Sol Orchard Solar PV Project, and Desert Center 50 Solar PV Project. These projects were added to the cumulative scenario after publication of the Draft EIS for the proposed project, and at the time of publication of this Final EIS, sufficient information about these three projects is not available to calculate their contribution to the cumulative environment for groundwater supply. Due to the many variables which contribute to how much water would be required for a project, including but not limited to the size of the development and type of technology installed, it is not possible to make reasonable assumptions about how much water each of these projects would consume. Therefore, the Silverado Power I, II, III, Sol Orchard Solar PV Project, and Desert Center 50 Solar PV Project are omitted from Table 4.20-4. One other change to the cumulative scenario that was implemented after publication of the Draft EIS is that the proposed Chuckwalla Valley Solar Project has been removed, as the application for this project was rejected. Table 4.20-4 indicates that between 2010 and 2043, water demand associated with cumulative projects ranges from a low of 620 afy in 2010 to a high of 10,010.9 afy in years 2014 through 2017.

In order to characterize potential effects of cumulative water demands on the CVGB, estimates of cumulative budget for the CVGB are presented in Tables 4.20-5a through 4.20-5c. A series of tables has been provided for this purpose in order to address differing professional opinions regarding the balance of the CVGB. As discussed in Section 3.20 and in the WSA included as Appendix E, the primary areas of differing opinion are the quantity of recharge to the CVGB

from precipitation, and from underflow of water in the adjacent Pinto and Orocopia Valley Groundwater Basins. Tables 4.20-5a through 4.20-5c address a range of potential values for recharge from precipitation and underflow, as follows:

- Table 4.20-5a assumes 9,448 afy recharge from precipitation and 3,500 afy recharge from underflow;
- Table 4.20-5b assumes 2,060 afy recharge from precipitation and 953 afy recharge from underflow; and
- Table 4.20-5c assumes 6,125 afy recharge from precipitation and 1,906 afy recharge from underflow.

Using the assumptions listed above and the cumulative water requirements listed in Table 4.20-4, the estimated cumulative groundwater budgets presented in Tables 4.20-5a through 4.20-5c indicate that the CVGB is expected to be affected by overdraft conditions during implementation of the DHSP. These deficit years are likely due to the elevated construction water requirements associated with coinciding construction periods for projects such as the Eagle Crest Pumped Storage Project, the Palen Solar Power Project, and the Desert Sunlight Solar Farm project, noted in Table 4.20-3. Following completion of the construction periods for these projects, their water requirements would decrease and overdraft conditions in the CVGB would recover. As portrayed in Table 4.20-4, projected overdraft conditions are projected to recover substantially over the life of the DHSP.

Construction and operation of the DHSP would include implementation of BMPs and mitigation measures identified in Section 4.20.6. Mitigation Measure WAT-2 (Alternative Water Source and Groundwater Offsets) and Mitigation Measure WAT-3 (Groundwater Drawdown Monitoring and Reporting Plan) require actions to ensure that construction of the proposed project or an alternative would not contribute to or result in long-term overdraft conditions; specifically, these mitigation measures ensure that the project would use a water source other than the CVGB during any year that the CVGB is projected to be affected by overdraft conditions, and groundwater monitoring and reporting actions would occur to clarify uncertainties regarding the groundwater basin characteristics, such as the quantity of recharge from precipitation and underflow, and to make management decisions accordingly.

Potential overdraft effects would be temporary and would cease in response to the implementation of requirements specified in Mitigation Measures WAT-2 and WAT-3. As determined in the effects analyses presented in Sections 4.20.3 through 4.20.14, the proposed project or an alternative would not result in long-term overdraft or drawdown conditions. In addition, if other project(s) within the geographic and temporal scope of analysis pump CVGB groundwater at the same time as the proposed project or an alternative, and such pumping results in overdraft conditions (temporary or long-term) as noted in Table 4.20-4, such effects would be detected by the groundwater monitoring and reporting activities required per Mitigation Measure WAT-3 and groundwater pumping associated with the proposed project or an alternative would be subsequently ceased until the groundwater resource recovers, which is anticipated to occur in response to precipitation events, per the nature of fractured rock storage and overdraft/drawdown conditions. Therefore, the DHSP would not contribute to cumulative effects associated with groundwater supply and recharge.

Water supply reliability is further addressed in the WSA prepared for the DHSP, included as Appendix E to this EIS. The WSA includes consideration of the cumulative groundwater budget discussed above, under varying climatic conditions in order to project how the availability of water supply could be affected by drought years. Conclusions presented in Section 5 of the WSA describe that overdraft conditions are expected to be present in the CVGB during implementation of the DHSP and other reasonably foreseeable projects in the area; however, such conditions would occur regardless of the proposed DHSP and would recover over time. Additionally, project-specific mitigation measures such as MM WAT-2 would ensure that the proposed DHSP would not contribute to overdraft conditions in the CVGB by requiring actions such as the use of an alternative water source during any year for which the CVGB is projected to be in overdraft. The project would have some effect on groundwater supply due to the consumptive use of CVGB groundwater during years with a positive water budget (non-overdraft years), but such effects would be less than significant and would not contribute to cumulative groundwater supply impacts.

Table 4.20-4. Estimated Water Requirements of Cumulative Projects (afy)

Cumulative Projects[1]	Const.	O&M	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019–2043
Western Chuckwalla Valley Groundwater Basin												
Palen Solar Power Project	436	300	0	426	426	436	300	300	300	300	300	300
First Solar Desert Sunlight[2]	600–650	0.3	0	0	[650][2]	[650][2]	0.3	0.3	0.3	0.3	0.3	0.3
Red Bluff Substation	300	0	0	0	150	150	0	0	0	0	0	0
Gen-Tie Line	6.25	0	0	0	0	6.25	0	0	0	0	0	0
Devers-Palo Verde No. 2 Transmission	2		0	2	2	2	0	0	0	0	0	0
Colorado River Substation Expansion[3]	215	0	0	0	215	66	0	0	0	0	0	0
Blythe Energy Transmission Line	2		2	2	0	0	0	0	0	0	0	0
Desert Southwest Transmission Line	0.3		0	0	0	0.3	0.3	0	0	0	0	0
Eagle Crest Pumped Storage Startup	2,380–8,066	1,628	0	0	0	0	8,066	8,066	8,066	8,066	2,380	1,628
Total WESTERN SUB-BASIN DEMAND			*2*	*430*	*793*[2]	*660.55*[2]	*8,366.6*	*8,366.3*	*8,366.3*	*8,366.3*	*2,680.3*	*1,928.3*
Eastern Chuckwalla Valley Groundwater Basin												
Genesis Solar Energy Project[4]	616–1,368	1,644	616	1,368	616	616	1,644	1,644	1,644	1,644	1,644	1,644
Devers-Palo Verde No. 2 Transmission	2		0	2	2	2	0	0	0	0	0	0

Table 4.20-4. Estimated Water Requirements of Cumulative Projects (afy)

Cumulative Projects[1]	Const. O&M	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019–2043
Blythe Energy Transmission Line	2	2	2	0	0	0	0	0	0	0	0
Desert SW Transmission	0.3	0	0	0	0.3	0.3	0	0	0	0	0
Total EASTERN SUB-BASIN DEMAND		*618*	*1,372*	*618*	*618.3*	*1,644.3*	*1,644*	*1,644*	*1,644*	*1,644*	*1,644*
Combined Western and Eastern Chuckwalla Valley Groundwater Basin											
		620	1,802	1,411[2]	1,278.85[2]	10,010.9	10,010.3	10,010.3	10,010.3	4,324.3	3,572.3

1 - Status of cumulative projects listed in this table:

- Gen-Tie Line construction would being in the 3rd or 4th quarter of 2012 and would last for an estimated 12 months; due to the late-2012 construction start, it is anticipated that most water use associated with the gen-tie line would occur in 2013.
- Palen Solar Energy Project was approved by the CEC in December of 2010, Final EIS published in May of 2011, proposed to be online in 2012
- First Solar Desert Sunlight was approved in August of 2011 and was under construction at the time of publication of the Notice of Intent for DHSP (September 15, 2011).
- Devers-Palo Verde No. 2 Transmission Line Project: BLM issued Record of Decision in July of 2011
- Colorado River Substation Expansion: Construction anticipated to initiate in December of 2011.
- Blythe Energy Transmission Line: Existing.
- Desert Southwest Transmission Line: Approved by BLM in 2006.
- Eagle Crest Pumped Storage: FERC Draft EIS published in December of 2010.
- Genesis Solar Energy Project: Currently under construction.

2 - The First Solar Desert Sunlight Project would require 650 afy of water for construction in 2012 and 2013; as discussed in Section 3.20, these construction water requirements were accounted for in the safe yield estimates provided in Tables 3.20 2 and 3.20-3, because construction of the Desert Sunlight Project was ongoing at the time of publication of the Notice of Intent for the proposed project and construction water use is therefore considered part of baseline conditions. This table shows the Desert Sunlight construction water usage, but does not include this quantity in the total water balance values, in order to avoid calculating for this amount twice — once in the safe yield estimate and once in the cumulative balance calculations. Operational water requirements of 0.3 afy for the Desert Sunlight Project are included in the totals shown above in Table 3.20-4 and below in Tables 3.20-5a through 3.20-5c because this amount was not previously accounted for in the safe yield estimates.

3 - The Colorado River Substation Expansion project would pump 300,000 gallons per day (gpd) over the first four to six months, or a total of 110.5 to 165.7 acre-feet, and 120,000 gpd over the following 18 months, or 198.9 acre-feet; in total, this project is anticipated to pump 309.3 to 364.6 acre-feet over 22 to 24 months, or an average annual rate of 215 afy during the first full year (2012) and 66 afy during the second year. No operational water use has been identified.

4 - The Genesis analysis noted that the Desert Sunlight Solar Farm project would pump 27 afy of groundwater during the construction period and 3.8 afy during the operational period; however, the FEIS for Desert Sunlight indicates that this project would pump an average of 1,556 afy during construction and less than 0.3 afy during operation. For the purposes of this analysis, the quantities indicated in the Desert Sunlight FEIS are used.

Source: CEC 2010; CEC 2010; CPUC 2011; WorleyParsons 2009

Table 4.20-5a (9,448 afy normal year). Estimated Cumulative Budget for the Chuckwalla Valley Groundwater Basin (afy)[1]

	Inflow (afy)					Outflow (afy)					Balance (afy)		
Year	Precip.	Subsurface Inflow	Irrigation Return	Wastewater Return	*Total Inflow*	Current Pumping	Flow to PVMGB	Palen Lake Evap	Future Pumping	*Total Outflow*	Balance	DHSP Demand	*With-Project*
2012	9,448	3,500	800	636	*14,384*	10,361	399	350	1,411	*12,521*	1,863	0	1,863
2013	9,448	3,500	800	636	*14,384*	10,361	388	350	1,278.85	*12,378*	2,006	500.51	*1,506*
2014	9,448	3,500	800	636	*14,384*	10,361	373	350	10,010.9	*21,095*	–6,711	500.51	*–7,211*
2015	9,448	3,500	800	636	*14,384*	10,361	360	350	10,010.3	*21,081*	–6,697	39.02	*–6,736*
2016	9,448	3,500	800	636	*14,384*	10,361	347	350	10,010.3	*21,068*	–6,684	39.02	*–6,723*
2017	9,448	3,500	800	636	*14,384*	10,361	334.5	350	10,010.3	*21,056*	–6,672	39.02	*–6,711*
2018	9,448	3,500	800	636	*14,384*	10,361	322	350	4,324.3	*15,357*	–973	39.02	*–1,012*
2019	9,448	3,500	800	636	*14,384*	10,361	308	350	3,572.3	*14,591*	–207	39.02	*–246*
2020	9,448	3,500	800	636	*14,384*	10,361	295	350	3,572.3	*14,578*	–194	39.02	*–233*
2021	9,448	3,500	800	636	*14,384*	10,361	281.5	350	3,572.3	*14,565*	–181	39.02	*–220*
2022	9,448	3,500	800	636	*14,384*	10,361	269	350	3,572.3	*14,552*	–168	39.02	*–207*
2023	9,448	3,500	800	636	*14,384*	10,361	256.5	350	3,572.3	*14,540*	–156	39.02	*–195*
2024	9,448	3,500	800	636	*14,384*	10,361	245	350	3,572.3	*14,528*	–144	39.02	*–183*
2025	9,448	3,500	800	636	*14,384*	10,361	233	350	3,572.3	*14,516*	–132	39.02	*–171*
2026	9,448	3,500	800	636	*14,384*	10,361	221	350	3,572.3	*14,504*	–120	39.02	*–159*
2027	9,448	3,500	800	636	*14,384*	10,361	210	350	3,572.3	*14,493*	–109	39.02	*–148*
2028	9,448	3,500	800	636	*14,384*	10,361	199.5	350	3,572.3	*14,483*	–99	39.02	*–138*
2029	9,448	3,500	800	636	*14,384*	10,361	190	350	3,572.3	*14,473*	–89	39.02	*–128*
2030	9,448	3,500	800	636	*14,384*	10,361	180	350	3,572.3	*14,463*	–79	39.02	*–118*
2031	9,448	3,500	800	636	*14,384*	10,361	170	350	3,572.3	*14,453*	–69	39.02	*–108*
2032	9,448	3,500	800	636	*14,384*	10,361	160	350	3,572.3	*14,443*	–59	39.02	*–98*
2033	9,448	3,500	800	636	*14,384*	10,361	150	350	3,572.3	*14,433*	–49	39.02	*–88*
2034	9,448	3,500	800	636	*14,384*	10,361	140	350	3,572.3	*14,423*	–39	39.02	*–78*
2035	9,448	3,500	800	636	*14,384*	10,361	131	350	3,572.3	*14,414*	–30	39.02	*–69*
2036	9,448	3,500	800	636	*14,384*	10,361	122	350	3,572.3	*14,405*	–21	39.02	*–60*
2037	9,448	3,500	800	636	*14,384*	10,361	113	350	3,572.3	*14,396*	–12	39.02	*–51*
2038	9,448	3,500	800	636	*14,384*	10,361	106	350	3,572.3	*14,389*	–5	39.02	*–44*
2039	9,448	3,500	800	636	*14,384*	10,361	98	350	3,572.3	*14,381*	3	39.02	*–36*
2040	9,448	3,500	800	636	*14,384*	10,361	90	350	3,572.3	*14,373*	30	39.02	*–9*
2041	9,448	3,500	800	636	*14,384*	10,361	83	350	3,572.3	*14,366*	18	39.02	*–21*
2042	9,448	3,500	800	636	*14,384*	10,361	77	350	3,572.3	*14,360*	24	39.02	*–15*
2043	9,448	3,500	800	636	*14,384*	10,361	71	350	3,572.3	*14,354*	30	39.02	*–9*

Source: CEC 2010; CEC 2009; BLM 2011a; WorleyParsons 2009 (outflow to PVMGB)
1 - Inflow and outflow factors are discussed in detail in Section 3.20.2 (see "Groundwater Resources")

Table 4.20-5b (2,060 afy normal year). Estimated Cumulative Budget for the Chuckwalla Valley Groundwater Basin (afy)

	Inflow (afy)					Outflow (afy)					Balance (afy)		
Year	Precip.	Subsurface Inflow	Irrigation Return	Wastewater Return	*Total Inflow*	Current Pumping	Flow to PVMGB	Palen Lake Evap	Future Pumping	*Total Outflow*	Balance	DHSP Demand	*With-Project*
2012	2,060	953	800	636	*4,449*	10,361	399	350	1,411	*12,521*	–8,072	0	–8,072
2013	2,060	953	800	636	*4,449*	10,361	388	350	1,278.85	*12,378*	–7,929	500.51	–8,430
2014	2,060	953	800	636	*4,449*	10,361	373	350	10,010.90	*21,095*	–16,646	500.51	–17,147
2015	2,060	953	800	636	*4,449*	10,361	360	350	10,010.30	*21,081*	–16,632	39.02	–16,671
2016	2,060	953	800	636	*4,449*	10,361	347	350	10,010.30	*21,068*	–16,619	39.02	–16,658
2017	2,060	953	800	636	*4,449*	10,361	334.5	350	10,010.30	*21,056*	–16,607	39.02	–16,646
2018	2,060	953	800	636	*4,449*	10,361	322	350	4,324.30	*15,357*	–10,908	39.02	–10,947
2019	2,060	953	800	636	*4,449*	10,361	308	350	3,572.30	*14,591*	–10,142	39.02	–10,181
2020	2,060	953	800	636	*4,449*	10,361	295	350	3,572.30	*14,578*	–10,129	39.02	–10,168
2021	2,060	953	800	636	*4,449*	10,361	281.5	350	3,572.30	*14,565*	–10,116	39.02	–10,155
2022	2,060	953	800	636	*4,449*	10,361	269	350	3,572.30	*14,552*	–10,103	39.02	–10,142
2023	2,060	953	800	636	*4,449*	10,361	256.5	350	3,572.30	*14,540*	–10,091	39.02	–10,130
2024	2,060	953	800	636	*4,449*	10,361	245	350	3,572.30	*14,528*	–10,079	39.02	–10,118
2025	2,060	953	800	636	*4,449*	10,361	233	350	3,572.30	*14,516*	–10,067	39.02	–10,106
2026	2,060	953	800	636	*4,449*	10,361	221	350	3,572.30	*14,504*	–10,055	39.02	–10,094
2027	2,060	953	800	636	*4,449*	10,361	210	350	3,572.30	*14,493*	–10,044	39.02	–10,083
2028	2,060	953	800	636	*4,449*	10,361	199.5	350	3,572.30	*14,483*	–10,034	39.02	–10,073
2029	2,060	953	800	636	*4,449*	10,361	190	350	3,572.30	*14,473*	–10,024	39.02	–10,063
2030	2,060	953	800	636	*4,449*	10,361	180	350	3,572.30	*14,463*	–10,014	39.02	–10,053
2031	2,060	953	800	636	*4,449*	10,361	170	350	3,572.30	*14,453*	–10,004	39.02	–10,043
2032	2,060	953	800	636	*4,449*	10,361	160	350	3,572.30	*14,443*	–9,994	39.02	–10,033
2033	2,060	953	800	636	*4,449*	10,361	150	350	3,572.30	*14,433*	–9,984	39.02	–10,023
2034	2,060	953	800	636	*4,449*	10,361	140	350	3,572.30	*14,423*	–9,974	39.02	–10,013
2035	2,060	953	800	636	*4,449*	10,361	131	350	3,572.30	*14,414*	–9,965	39.02	–10,004
2036	2,060	953	800	636	*4,449*	10,361	122	350	3,572.30	*14,405*	–9,956	39.02	–9,995
2037	2,060	953	800	636	*4,449*	10,361	113	350	3,572.30	*14,396*	–9,947	39.02	–9,986
2038	2,060	953	800	636	*4,449*	10,361	106	350	3,572.30	*14,389*	–9,940	39.02	–9,979
2039	2,060	953	800	636	*4,449*	10,361	98	350	3,572.30	*14,381*	–9,932	39.02	–9,971
2040	2,060	953	800	636	*4,449*	10,361	90	350	3,572.30	*14,373*	–9,924	39.02	–9,963
2041	2,060	953	800	636	*4,449*	10,361	83	350	3,572.30	*14,366*	–9,917	39.02	–9,956
2042	2,060	953	800	636	*4,449*	10,361	77	350	3,572.30	*14,360*	–9,911	39.02	–9,950
2043	2,060	953	800	636	*4,449*	10,361	71	350	3,572.30	*14,354*	–9,905	39.02	–9,944

Table 4.20-5c (6,125 afy normal year). Estimated Cumulative Budget for the Chuckwalla Valley Groundwater Basin (afy)

	Inflow (afy)					Outflow (afy)					Balance (afy)		
Year	Precip.	Subsurface Inflow	Irrigation Return	Wastewater Return	*Total Inflow*	Current Pumping	Flow to PVMGB	Palen Lake Evap	Future Pumping	*Total Outflow*	Balance	DHSP Demand	*With-Project*
2012	6,125	1,906	800	636	*9,467*	10,361	399	350	1,411	*12,521*	–3,054	0	–3,054
2013	6,125	1,906	800	636	*9,467*	10,361	388	350	1,278.85	*12,378*	–2,911	500.51	–3,412
2014	6,125	1,906	800	636	*9,467*	10,361	373	350	10,010.90	*21,095*	–11,628	500.51	–12,129
2015	6,125	1,906	800	636	*9,467*	10,361	360	350	10,010.30	*21,081*	–11,614	39.02	–11,653
2016	6,125	1,906	800	636	*9,467*	10,361	347	350	10,010.30	*21,068*	–11,601	39.02	–11,640
2017	6,125	1,906	800	636	*9,467*	10,361	334.5	350	10,010.30	*21,056*	–11,589	39.02	–11,628
2018	6,125	1,906	800	636	*9,467*	10,361	322	350	4,324.30	*15,357*	–5,890	39.02	–5,929
2019	6,125	1,906	800	636	*9,467*	10,361	308	350	3,572.30	*14,591*	–5,124	39.02	–5,163
2020	6,125	1,906	800	636	*9,467*	10,361	295	350	3,572.30	*14,578*	–5,111	39.02	–5,150
2021	6,125	1,906	800	636	*9,467*	10,361	281.5	350	3,572.30	*14,565*	–5,098	39.02	–5,137
2022	6,125	1,906	800	636	*9,467*	10,361	269	350	3,572.30	*14,552*	–5,085	39.02	–5,124
2023	6,125	1,906	800	636	*9,467*	10,361	256.5	350	3,572.30	*14,540*	–5,073	39.02	–5,112
2024	6,125	1,906	800	636	*9,467*	10,361	245	350	3,572.30	*14,528*	–5,061	39.02	–5,100
2025	6,125	1,906	800	636	*9,467*	10,361	233	350	3,572.30	*14,516*	–5,049	39.02	–5,088
2026	6,125	1,906	800	636	*9,467*	10,361	221	350	3,572.30	*14,504*	–5,037	39.02	–5,076
2027	6,125	1,906	800	636	*9,467*	10,361	210	350	3,572.30	*14,493*	–5,026	39.02	–5,065
2028	6,125	1,906	800	636	*9,467*	10,361	199.5	350	3,572.30	*14,483*	–5,016	39.02	–5,055
2029	6,125	1,906	800	636	*9,467*	10,361	190	350	3,572.30	*14,473*	–5,006	39.02	–5,045
2030	6,125	1,906	800	636	*9,467*	10,361	180	350	3,572.30	*14,463*	–4,996	39.02	–5,035
2031	6,125	1,906	800	636	*9,467*	10,361	170	350	3,572.30	*14,453*	–4,986	39.02	–5,025
2032	6,125	1,906	800	636	*9,467*	10,361	160	350	3,572.30	*14,443*	–4,976	39.02	–5,015
2033	6,125	1,906	800	636	*9,467*	10,361	150	350	3,572.30	*14,433*	–4,966	39.02	–5,005
2034	6,125	1,906	800	636	*9,467*	10,361	140	350	3,572.30	*14,423*	–4,956	39.02	–4,995
2035	6,125	1,906	800	636	*9,467*	10,361	131	350	3,572.30	*14,414*	–4,947	39.02	–4,986
2036	6,125	1,906	800	636	*9,467*	10,361	122	350	3,572.30	*14,405*	–4,938	39.02	–4,977
2037	6,125	1,906	800	636	*9,467*	10,361	113	350	3,572.30	*14,396*	–4,929	39.02	–4,968
2038	6,125	1,906	800	636	*9,467*	10,361	106	350	3,572.30	*14,389*	–4,922	39.02	–4,961
2039	6,125	1,906	800	636	*9,467*	10,361	98	350	3,572.30	*14,381*	–4,914	39.02	–4,953
2040	6,125	1,906	800	636	*9,467*	10,361	90	350	3,572.30	*14,373*	–4,906	39.02	–4,945
2041	6,125	1,906	800	636	*9,467*	10,361	83	350	3,572.30	*14,366*	–4,899	39.02	–4,938
2042	6,125	1,906	800	636	*9,467*	10,361	77	350	3,572.30	*14,360*	–4,893	39.02	–4,932
2043	6,125	1,906	800	636	*9,467*	10,361	71	350	3,572.30	*14,354*	–4,887	39.02	–4,926

As discussed in Section 3.20 (see "Colorado River Accounting Surface"), groundwater pumped from the CVGB at or below an elevation of 234 feet amsl can be considered recharge from the adjudicated Colorado River. Groundwater levels in the proposed DHSP area are understood to range from the ground surface to 400 feet bgs. Mitigation Measure WAT-7 (Colorado River Water Supply Plan) is required to ensure that groundwater monitoring data is collected during implementation of the project, and that if the project results in pumping of any groundwater that would be replaced by Colorado River water, conservation actions would be implemented to "replace" the groundwater on an acre-foot by acre-foot basis, equating to a ratio of 1:1. As such, the proposed DHSP would not result in significant impacts associated with the Colorado River or consumptive use of Colorado River water, and would not contribute to cumulative impacts on the Colorado River, including as a result of its hydrologic connectivity with the CVGB.

Surface Water and Drainage Patterns

Implementation of the proposed project or an alternative (Alternatives 5 through 7 and C, D, and E) would include both temporary and permanent areas of disturbance that would result in site-specific alterations to surface waters and drainage patterns. With implementation of the BMPs and mitigation measures presented in Section 4.20.6, construction, operation, and maintenance would not result in substantial effects to surface water and drainage patterns such that erosion, siltation, or flooding would occur on or off site. Other projects that are also identified in the cumulative scenario (see Table 4.1-1) would result in alterations to surface water and drainage patterns in similar ways as the proposed project or an alternative; however, such effects are anticipated to be site-specific and would not occur on the same site as the proposed project or an alternative.

Stormwater Drainage Systems

The proposed project and alternatives (Alternatives 5 through 7 and C, D, and E) would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, and would therefore not have the potential to result in cumulative effects associated with existing or planned stormwater drainage systems. Due to the use and storage of harmful or potentially hazardous materials during the project, there is potential for contributions of sources of polluted runoff to occur, such as if an accidental leak or release of harmful materials were to occur during a storm event; however, such effects would be site-specific and mitigated by actions listed in Section 4.20.6, and would therefore not have the potential to combine with effects of other projects in the cumulative scenario, as related to the contribution of polluted runoff.

Flood Hazard Areas

Infrastructure constructed under the proposed project or an alternative (Alternatives 5 through 7 and C, D, and E) would be designed and engineered to withstand potential flooding and erosion hazards and, with implementation of BMPs and mitigation measures identified in Section 4.20.6, effects associated with impeding or redirecting flood flows would be minimized and/or avoided. It is anticipated that other projects in the cumulative scenario would also place infrastructure within and/or adjacent to areas subject to flooding hazards; however, due to the site-specific nature of potential effects associated with Flood Hazard Areas and the minimization and/or avoidance of potential Flood Hazard Area effects that would occur through implementation of the BMPs and mitigation measures identified in Section 4.20.6, this potential effect of the pro-

posed project or an alternative is not anticipated to combine with similar effects of other projects in the cumulative scenario.

Water Quality

Degradation of surface water quality and/or groundwater quality could occur through the effects of erosion and sedimentation, and/or through the accidental release of hazardous materials, particularly if a storm event occurs during construction activities. Other projects in the cumulative scenario would also have the potential to result in water quality effects associated with erosion and sedimentation and/or the release of hazardous materials. This effect of the proposed project or an alternative (Alternatives 5 through 7 and C, D, and E) would be site-specific in nature and would be minimized and/or avoided through implementation of the BMPs and mitigation measures identified in Section 4.20.6. This potential effect of the proposed project or an alternative would not have potential to combine with similar effects of other projects in the cumulative scenario.

The No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. In addition, Alternative B would not contribute to cumulative effects to water resources, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

4.20.16 CEQA Considerations

This section is included in this EIS for future use by CEQA Lead and Responsible agencies, and is not required under NEPA.

CEQA Significance Criteria

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. These criteria are used to determine whether the project or alternative would result in significant impacts to water resources under CEQA. The project and alternatives would result in a significant impact to water resources if one of the following criteria is met.

WAT-1 Violate any water quality standards or waste discharge requirements.

WAT-2 Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

WAT-3 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.

WAT-4 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

WAT-5 Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

WAT-6 Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

Additional significance criteria identified in Appendix G of the CEQA Guidelines have been determined either to be inapplicable or to result in no impact associated with the proposed project or an alternative. These criteria, listed below, are not discussed in the following "CEQA Significance Determination" section.

- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows.
- Inundation by seiche, tsunami, or mudflow.
- Otherwise substantially degrade water quality.

The proposed project and alternatives are located within an area that has been designated by FEMA as Flood Zone D, or areas which have not been mapped for Flood Hazard Areas or 100-year flood hazard areas. This does not mean that such flooding potential does not exist, but rather that it has not been quantified or mapped. Flooding risks and potential impacts associated with flooding are addressed under Significance Criterion WAT-6.

The project site is not located near a body of water that would have the potential to be affected by a seiche or tsunami that could result in inundation of the site or surrounding area. With regards to mudflow, mudflow tends to occur on steep slopes where vegetation is not sufficient to prevent rapid erosion, and where specific soil characteristics exist. The project area is generally surrounded by mountainous areas; as described in Section 3.20, the Chuckwalla Mountains are to the south of the valley, Eagle Mountains are to the west and north of the valley, Coxcomb Mountains are to the north of the valley, and Palen Mountains are to the east. However, none of these mountainous areas are in close enough proximity to the proposed project site that the site would be inundated should a mudflow event occur.

Potential impacts associated with water quality are sufficiently addressed under CEQA Significance Criteria WAT-1 through WAT-5. An additional criterion specific to water quality effects is therefore not necessary. CEQA Significance Criteria WAT-1 through WAT-6 are discussed below.

CEQA Significance Determination

Alternative 1. Under Alternative 1, the proposed DHSP would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed at the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended. It is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no ground disturbance. Impacts to water resources would not occur.

Alternative 2. Under Alternative 2, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. Impacts to water resources would not occur.

Alternative 3. Under Alternative 3, the proposed DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. Impacts to water resources would not occur.

Alternative 4. Alternative 4 is expected to occur in compliance with all applicable water quality standards and waste discharge requirements. Mitigation Measure WAT-1 (Demonstrate Compliance with Water Quality Permits) would ensure that the project would occur in compliance with all applicable water quality permits and waste discharge requirements associated with construction, operation, and decommissioning activities; potential impacts would be less than significant with mitigation (CEQA Significance Criterion WAT-1).

Construction, operation and maintenance, and decommissioning of Alternative 4 would require a water source, and would meet project water requirements by pumping groundwater from the CVGB. Tables 3.20-2 and 3.20-3 provide several potential water budget scenarios for the CVGB, including consideration to the Desert Sunlight project, and indicate a wide range of potential groundwater conditions; due to varying expert opinion in support of these budgets, this impact analysis considers each potential scenario. Mitigation measures listed in Section 4.20.6 would include the implementation of an Alternative Water Source and Groundwater Offsets (MM WAT-2), and a Groundwater Drawdown Monitoring and Reporting Plan (MM WAT-3). In addition, although Alternative 4 would introduce new impervious features across the site, including areas of soil compaction such as along access roads, these effects would not reduce infiltration rates or patterns such that groundwater supply and recharge to the CVGB would be adversely affected. Implementation of the Drought Water Management and Water Conservation Education Programs required per MM WAT-6 and the Colorado River Water Supply Plan required per MM WAT-7 would also minimize potential impacts to groundwater supply and recharge. Potential impacts would be less than significant with mitigation (CEQA Significance Criterion WAT-2).

Alternative 4 would alter existing drainage patterns on the site, but would not alter the course of any stream or river. A project-specific SWPP would be developed and implemented, and would include BMPs specified in MM WAT-4 to minimize or avoid potential impacts associated with erosion, siltation, and flooding. Alternative 4 would not alter surface runoff such that substantial erosion, siltation, or flooding would occur on or off site; impacts would be less than significant with mitigation (CEQA Significance Criteria WAT-3 and WAT-4).

There is no existing stormwater drainage system(s) in the project area. However, construction of Alternative 4 would result in ground-disturbing activities and the handling and storage of potentially hazardous materials that would have the potential to leak or be accidentally released, resulting in polluted stormwater runoff. With implementation of the BMPs specified in MM WAT-4 and the accidental spill control and environmental training measures required per MM

WAT-9, potential impacts associated with the contribution of polluted runoff would be less than significant (CEQA Significance Criterion WAT-5).

The project area is not located in proximity to a levee or dam, such that the failure of this infrastructure would result in flooding at the DHSP site. The project area is also not located within a FEMA-designated Flood Hazard Area or 100-year Flood Zone; however, the site and surrounding parcels are designated as Flood Zone D, indicating that 100-year floods have not been assessed for this area. As described in Section 3.20, hydrologic analysis conducted in support of the DHSP indicates that 100-year flood depth on the site is anticipated to be three to five feet in depth. In accordance with MM WAT-8, all features constructed under Alternative 4 would be designed and maintained to withstand flood flows on the site, and potential impacts associated with risks associated with flooding would be less than significant (CEQA Significance Criterion WAT-6).

Alternative 4 would contribute to cumulative water supply impacts associated with the use of the CVGB to meet the project's water requirements; however, implementation of Mitigation Measures WAT-2 (Alternative Water Source and Groundwater Offsets) and WAT-3 (Groundwater Drawdown Monitoring and Reporting Plan) would minimize or avoid the project's potential to affect water supply. With implementation of these mitigation measures, the project's contribution to cumulative water supply impacts would be less than significant. Similarly, as described above, Alternative 4 would not result in significant impacts to surface water and drainage patterns stormwater drainage systems, flood hazard areas, or water quality; the project's contribution to cumulative water resources impacts would be less than significant.

Alternative 5. Under Alternative 5 the solar facility site would be constructed the same as Alternative 4, however, project components would be excluded from the WHMA. This represents a very small portion of the site, in an area located away from any identified residences. Therefore, water resources impacts and CEQA significance conclusions for Criteria WAT-1 through WAT-7 regarding construction, operation, and decommissioning would essentially be the identical to Alternative 4, discussed above.

Alternative 6. Similar to Alternative 5, Alternative 6 would also develop a slightly smaller area of the solar facility site than proposed under Alternative 4. Construction activities would occur on the same schedule as for Alternative 4 and would include the same water requirements. The size of the area disturbed on a given day would be smaller under Alternative 6 than under Alternatives 4 and 5, and the potential for associated soil erosion and sedimentation would be marginally less, but for practical purposes and with consideration to the overall project, water quality impacts would be the same as described for Alternative 4. Potential impacts to water resources and the associated CEQA significance conclusions for Criteria WAT-1 through WAT-6 regarding construction, operation, and decommissioning would be identical to Alternative 4, discussed above.

Alternative 7. Similar to Alternative 6, Alternative 7 would also develop a slightly smaller area of the solar facility site than proposed under Alternative 4. Construction activities would occur on the same schedule as for Alternative 4 and would include the same water requirements. The size of the area disturbed on a given day would be smaller under Alternative 7 than under Alternatives 4 and 5, and the potential for associated soil erosion and sedimentation would be marginally less, but for practical purposes and with consideration to the overall project, water quality impacts would be the same as described for Alternative 4. Potential impacts to water

resources and the associated CEQA significance conclusions for Criteria WAT-1 through WAT-6 regarding construction, operation, and decommissioning would be identical to Alternative 4, discussed above.

Alternative A. Under Alternative A, no gen-tie line would be constructed or operated as part of the DHSP. Therefore, no water resources impacts under CEQA Significance Criteria WAT-1 through WAT-7 related to construction, operations and maintenance, or decommissioning would occur.

Alternative B. Alternative B would share gen-tie infrastructure with the Desert Sunlight project; however, because the Desert Sunlight gen-tie is not included in baseline conditions, Alternative B would involve the construction of gen-tie infrastructure. Alternative B would require a water supply of 6.25 afy, and is accounted for in the water availability projections included in the WSA provided as Appendix E. The use of equipment and machinery required to construct, maintain, and decommission gen-tie infrastructure would introduce the potential for localized drainage pattern alternations to occur, as well as introduce the potential for a spill or leak of hazardous materials to occur. Potential impacts would be less than significant with mitigation.

The cumulative scenario for Alternative B includes the Desert Sunlight project; therefore, potential cumulative effects to water resources associated with construction of the proposed gen-tie under Alternative B would be negligible because the same gen-tie would be constructed by Desert Sunlight.

Alternative C. The potential for water resources impacts to occur under Alternative C would be greater than under Alternative B due to the construction of new towers. The use of equipment and machinery required to construct, maintain, and decommission additional infrastructure would increase the potential for a spill or leak of hazardous materials to occur. Potential impacts to water quality could occur from a leak or release of hazardous materials used in construction vehicles and equipment. Potential impacts would be less than significant with mitigation.

Potential impacts of Alternative C would be reduced to a less-than-significant level with the implementation of mitigation measures, and the contributions of Alternative C to cumulative water resources impacts would also be less than significant.

Alternative D. Alternative D would require slightly less temporary and permanent ground disturbance, and potential water quality impacts associated with erosion and sedimentation would also be less. Potential impacts would be less than significant with mitigation.

Alternative E. Alternative E would result in the same potential for impacts to water resources as Alternative D. Potential impacts would be less than significant with mitigation.

4.21 SOLID AND HAZARDOUS WASTES

4.21.1 Methodology for Analysis

Environmental baseline conditions for the impact analysis presented in this section are described in Section 3.21 of this EIS. Solid and hazardous waste effects are assessed here with respect to the following: wastes generated on-site, disposal of wastes generated on-site, septic system, landfill use and capacity, and emergency response and evacuation relevant to hazardous wastes. Hazardous materials and public safety are addressed in Sections 3.13 and 4.13, Public Health and Safety.

4.21.2 Applicant Measures

Applicant measures (AM) relevant to solid and hazardous wastes that would be implemented during project construction, operation and maintenance, and/or decommissioning, as appropriate, are listed in Section 4.13.2 (Applicant Measures, Public Health and Safety): AM HAZ-1 through AM HAZ-9. These AMs have been incorporated as design features of the proposed project (and all action alternatives) and shall be implemented to reduce adverse impacts associated with the project. In some cases, mitigation measures further clarify or expand on AM reporting requirements, timing of implementation, or other details where appropriate. Where there is a conflict between provisions of the mitigation measures imposed and AMs, the mitigation measures take precedence.

4.21.3 Alternative 1 – No Action (No Plan Amendment)

Under Alternative 1, the proposed Desert Harvest Solar Project (DHSP) would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan.

4.21.4 Alternative 2 – No Project Alternative (with Plan Amendment to Find the Site Suitable for Solar Energy Development)

Under Alternative 2, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site available for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Plan. It is possible that, as a result of the CDCA Plan amendment, that in the future another solar energy generation project could be proposed with impacts similar to the DHSP, however, such impacts are speculative at this time, and no effects from the DHSP would occur.

4.21.5 Alternative 3 – No Project Alternative (with Plan Amendment to Find the Site Unsuitable for Solar Energy Development)

Under Alternative 3, the DHSP would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, the DHSP would not be constructed on the project site and BLM would manage the site consistent with the amended land use designation in the CDCA Land Use Plan. No impacts from the DHSP would occur.

4.21.6 Alternative 4 – Proposed Solar Project

Construction

Direct Effects

Construction of Alternative 4 would generate wastes on-site such as oily rags, broken and rusted metal and machine parts, defective or broken panels and electrical materials, empty containers, and miscellaneous solid wastes including the refuse generated by workers. These materials would be collected on-site and disposed of in an off-site facility or facilities with sufficient capacity to accept project waste. As discussed in Section 3.21.2, the Riverside County Waste Management Department (RCWMD) operates six landfills (Badlands, Blythe, Desert Center, Lamb Canyon, Mecca II, and Oasis) and has a contract agreement for waste disposal with an additional private landfill (El Sobrante); RCWMD ensures that Riverside County has a minimum of 15 years of capacity, at any time, for future landfill disposal (RCWMD 2011).

Portable bathrooms would be provided on-site during construction of Alternative 4 and would be emptied in an approved off-site facility; domestic wastewater generated during construction of the project would not be disposed of on-site.

Broken cadmium-containing panels are not classified as hazardous wastes because the chemical within PV modules including cadmium are highly stable and would not be available for release to and interaction with the environment. Potential public health and safety effects of broken cadmium-containing PV panels are addressed in Section 4.13, Public Health and Safety.

All construction-related hazardous wastes would be transported and disposed of in compliance with all federal and State laws and regulations governing hazardous wastes, as described in Section 3.21. Through compliance with existing laws and regulations, adverse effects related to the transport and disposal of solid and hazardous wastes would be unlikely to occur. Furthermore, implementation of Mitigation Measure (MM) PHS-1 through MM PHS-6 (Hazardous Materials Management Plan, BMPs for hazardous materials, SPCC Plan, Environmental Health and Safety Plan, Emergency Response and Inventory Plan, Recycling and Disposal of Panels) as required for potential public health and safety effects would minimize any potential risk to public health or the environment related to transportation and disposal of hazardous wastes from project construction.

Indirect Effects

Construction of Alternative 4 would not result in indirect effects associated with solid and hazardous wastes.

Operation and Maintenance

Direct Effects

Operation and maintenance of Alternative 4 would generate minimal waste requiring off-site disposal; such waste is anticipated to include office waste, food scraps from operational workers, and occasional broken components. As with construction waste, operational waste would be collected on-site and transported to an off-site disposal facility or facilities with sufficient capacity to accept project waste. As described above and discussed in Section 3.21.2, the

RCWMD ensures that Riverside County has a minimum of 15 years of capacity, at any time, for future landfill disposal (RCWMD 2011).

Operation and maintenance of Alternative 4 would also include the use, storage, and disposal of the same hazardous and potentially hazardous materials as for the construction phase.

All operational hazardous wastes would be required to be transported and disposed of in compliance with all federal and State laws and regulations governing hazardous wastes, as described in Section 3.21. Mitigation Measures PHS-1 through PHS-6 (Hazardous Materials Management Plan, BMPs for hazardous materials, SPCC Plan, Environmental Health and Safety Plan, Emergency Response and Inventory Plan, Recycling and Disposal of Panels) would reduce effects related to hazardous wastes. The text of these measures is included in Section 4.13 (Public Health and Safety).

Sanitary wastewater would be discharged into an appropriate septic system and leach field that will be permitted by the Riverside County Health District and permitted under a Waste Discharge Requirement (WDR) permit from the Colorado River Basin Regional Water Quality Control Board (RWQCB). Compliance with existing laws and regulations, in combination with implementation of AMs and MMs listed above would minimize potential operational adverse effects related to solid and hazardous wastes.

Indirect Effects

Operation and maintenance of Alternative 4 would not result in indirect effects associated with solid and hazardous wastes.

Decommissioning

Direct Effects

As with construction and operation of the project, waste materials generated during decommissioning of the project would be collected on-site and disposed of in an off-site facility or facilities with sufficient capacity to accept project waste. Any potential effects related to these materials would be reduced by Applicant Measure HAZ-10 and Mitigation Measures PHS-1 through PHS-6 (text in Section 4.13, Public Health and Safety; Hazardous Materials Management Plan, BMPs for hazardous materials, SPCC Plan, Environmental Health and Safety Plan, Emergency Response and Inventory Plan, Recycling and Disposal of Panels). MM PHS-6 specifically addresses proper recycling or disposal of project infrastructure.

AM-HAZ-10 (Decommissioning Plan) includes the Applicant's decommissioning plan. A decommissioning plan will be developed for the project and submitted to the BLM for review and approval; this plan would include procedures designed to ensure public health and safety, including as related to solid and hazardous wastes.

Also as described in the Applicant's POD, the decommissioning strategy for the project may include the following, as relevant to solid and hazardous wastes:

- Provide for recycling the components of the plant: metal, panels, concrete, etc., and proper disposal of all other materials;

- Remove all residual materials and chemicals from the site prior to demolition for reuse at other facilities or disposal at licensed facilities;
- Soils clean-up, if needed, particularly at locations where hazardous materials were used or stored to ensure that clean closure is achieved.

As described in the Applicant's POD, if closure of the project involves the threat or actual release of hazardous substances, procedures will be implemented from the Hazardous Materials Business Plan to be developed specifically for the project. Such procedures will include but not be limited to the following:

- Practices to control any release of hazardous materials;
- Applicable notifications of responsible agencies and the public; and
- Emergency response procedures.

Indirect Effects

Decommissioning of Alternative 4 would not result in indirect effects associated with solid and hazardous wastes.

Mitigation Measures

Applicant Measures noted above from Public Health and Safety (Section 4.13) and MM PHS-1 through MM PHS-6 would minimize effects related to hazardous wastes.

Residual Impacts and Unavoidable Adverse Effects

No unavoidable adverse effects to solid and hazardous wastes would result from implementation of Alternative 4.

4.21.7 Alternative 5 – Solar Project Excluding WHMA

Alternative 5 would remain in the same location as Alternative 4 and would use the same project boundaries as Alternative 4 except that it would exclude the portion of the site which is within the Palen-Ford Wildlife Habitat Management Area (WHMA).

Construction

Excluding the WHMA from development under Alternative 5 would result in proportionately smaller potential effects on solid and hazardous wastes. This difference would be negligible with regard to the potential of Alternative 5 to result in direct or indirect effects related to solid and hazardous wastes. Potential effects on solid and hazardous wastes associated with construction of Alternative 5 would be the same as described in Section 4.21.6 for Alternative 4.

Operation and Maintenance

Potential effects on solid and hazardous wastes associated with operation and maintenance of Alternative 5 would be the same as described in Section 4.21.6 for Alternative 4.

Decommissioning

Potential effects on solid and hazardous wastes associated with decommissioning of Alternative 5 would be the same as described in Section 4.21.6 for Alternative 4.

Mitigation Measures

Mitigation Measures for Alternative 4 would also apply to Alternative 5.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative 5 would not result in any unavoidable adverse effects on solid and hazardous wastes.

4.21.8 Alternative 6 – Reduced Footprint Solar Project

Alternative 6 would remain in the same location as Alternative 4 and would use the same site boundaries as Alternative 4 except that it would exclude the 155-acre southern parcel of the project and a small portion of the northern parcel that contains sensitive plant species, crucifixion thorn, as shown on Figure 2-10, Alternative 6: Reduced Footprint Solar Project, in Appendix A.

Construction

Alternative 6 would result in proportionately smaller potential effects on solid and hazardous wastes. This difference would be negligible with regards to the potential of Alternative 6 to result in direct or indirect effects related to solid and hazardous wastes. Potential effects on solid and hazardous wastes associated with construction of Alternative 6 would be the same as described in Section 4.21.6 for Alternative 4.

Operation and Maintenance

Potential effects on solid and hazardous wastes associated with operation and maintenance of Alternative 6 would be the same as described in Section 4.21.6 for Alternative 4.

Decommissioning

Potential effects on solid and hazardous wastes associated with decommissioning of Alternative 6 would be the same as described in Section 4.21.6 for Alternative 4.

Mitigation Measures

Mitigation Measures for Alternative 4 would also apply to Alternative 6.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative 6 would not result in any unavoidable adverse effects on solid and hazardous wastes.

4.21.9 Alternative 7 – High-Profile Reduced Footprint Solar Project

Alternative 7 would be constructed within the same project boundaries as Alternative 6. Alternative 7 would encompass an estimated 1,044 acres and would be an estimated 150 MW nominal capacity project. Project details are the same as for Alternative 4, with the only exception being

the overall height of the panels for Alternative 7. Alternative 7 would use high-profile single-axis tracking panels that would have a total height of 15 feet.

Construction

Alternative 7 would result in proportionately smaller potential effects on solid and hazardous wastes. This difference would be negligible with regards to the potential of Alternative 7 to result in direct or indirect effects related to solid and hazardous wastes. Potential effects on solid and hazardous wastes associated with construction of Alternative 7 would be the same as described in Section 4.21.6 for Alternative 4.

Operation and Maintenance

Potential effects on solid and hazardous wastes associated with operation and maintenance of Alternative 7 would be the same as described in Section 4.21.6 for Alternative 4.

Decommissioning

Potential effects on solid and hazardous wastes associated with decommissioning of Alternative 7 would be the same as described in Section 4.21.6 for Alternative 4.

Mitigation Measures

Mitigation Measures for Alternative 4 would also apply to Alternative 7.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative 7 would not result in any unavoidable adverse effects on solid and hazardous wastes.

4.21.10 Alternative A – No Gen-Tie

Under Alternative A, no gen-tie line would be constructed or operated. Therefore, no solid and hazardous wastes effects related to construction, operations and maintenance, or decommissioning would occur.

4.21.11 Alternative B – Proposed Gen-Tie (Shared Towers)

Under Alternative B, the proposed gen-tie would utilize transmission infrastructure developed for First Solar's Desert Sunlight Solar Farm (DSSF) project by sharing the approved transmission towers. However, since construction of the DSSF gen-tie line had not yet begun in September 2011, this analysis assumes that the proposed project would include all construction, operations, and decommissioning activities for Alternative B.

Construction

Stringing of the project owner's gen-tie line would occur concurrently with construction of First Solar's gen-tie line. However, since this construction had not yet begun in September 2011, this analysis assumes that the proposed project would require all related construction activities.

Direct Effects

The types of construction activities under Alternative B would be similar to those for Alternative 4; however, less construction would be required for the gen-tie than for the project. Therefore, there would be fewer potential effects related to solid and hazardous wastes.

Indirect Effects

No indirect effects related to solid and hazardous wastes would occur as a result of construction of Alternative B.

Operation and Maintenance

Operation and maintenance of activities under Alternative B would be essentially the same as those for Alternative 4.

Direct Effects

Direct effects of operation and maintenance under Alternative B would be similar to those of Alternative 4; however, less maintenance activity would be required for the gen-tie than for the project. Therefore, there would be fewer potential effects related to solid and hazardous wastes.

Indirect Effects

No indirect effects related to solid and hazardous wastes would occur as a result of operation and maintenance of Alternative B.

Decommissioning

Direct Effects

Decommissioning activities under Alternative B would be similar to those for Alternative 4; however, less decommissioning would be required for the gen-tie than for the project. Therefore, there would be fewer potential effects related to solid and hazardous wastes.

Indirect Effects

No indirect effects related to solid and hazardous wastes would occur as a result of decommissioning of Alternative B.

Mitigation Measures

Mitigation identified for Alternative 4 would also be implemented for Alternative B.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative B would not result in any unavoidable adverse effects.

4.21.12 Alternative C – Separate Transmission Towers within Same ROW

Under Alternative C, the gen-tie line would parallel the approved Desert Sunlight gen-tie line, and would be located on separate towers within the same ROW. The same number of towers in a nearly identical alignment to that of the Desert Sunlight towers would be constructed.

Construction

Construction effects would be the same as those of Alternative B.

Operation and Maintenance

Operations and maintenance effects would be the same as those of Alternative B.

Decommissioning

Decommissioning effects would be the same as those of Alternative B.

Mitigation Measures

Measures identified for Alternative 4 would also be implemented for Alternative C.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative C would not result in any unavoidable adverse effects.

4.21.13 Alternative D – Cross-Valley Alignment

Construction, operation and maintenance, and decommissioning of Alternative D would be the same as described for Alternative C, except it would require slightly less temporary and permanent ground disturbance.

Construction

Direct Effects

Direct effects related to solid and hazardous wastes would be slightly less under Alternative D due to the need for slightly less ground disturbance, noted above. However, with consideration to the overall project, this difference in potential effects on solid and hazardous wastes would be negligible. Construction effects on solid and hazardous wastes would be the same as described for Alterative B.

Indirect Effects

No indirect effects related to solid and hazardous wastes would occur as a result of construction of Alternative D.

Operation and Maintenance

Operation and maintenance of Alternative D may include repair or replacement of facilities, as necessary. Potential effects related to solid and hazardous wastes would be the same as those of Alternative B.

Decommissioning

Direct Effects

Decommissioning of Alternative D may result in slightly decreased effects related to solid and hazardous wastes associated with slightly decreased land disturbance. However, as with construction, this difference in potential effects on solid and hazardous wastes would be negligible. Decommissioning effects on solid and hazardous wastes would be the same as described for Alternative B.

Indirect Effects

No indirect effects related to solid and hazardous wastes would occur as a result of decommissioning of Alternative D.

Mitigation Measures

Measures identified for Alternative 4 would also apply to Alternative D.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative D would not result in any unavoidable adverse effects.

4.21.14 Alternative E – New Cross-Valley Alignment

Construction, operation and maintenance, and decommissioning of Alternative E would be the same as described for Alternative C.

Construction

Effects related to solid and hazardous wastes would be the same under Alternative E as described above for Alternative D.

Operation and Maintenance

Effects related to solid and hazardous wastes would be the same under Alternative E as described above for Alternative D.

Decommissioning

Effects related to solid and hazardous wastes would be the same under Alternative E as described above for Alternative D.

Mitigation Measures

Measures identified for Alternative 4 would also apply to Alternative E.

Residual Impacts and Unavoidable Adverse Effects

The construction, operation and maintenance, and decommissioning of Alternative E would not result in any unavoidable adverse effects.

4.21.15 Cumulative Effects

Cumulative effects related to solid and hazardous wastes can result from individually minor but collectively significant actions taken over time. Major past, present, and reasonably anticipated future land uses and disturbances in the area have been identified in Section 4.1.4 (Cumulative Scenario) in this EIS, and include energy generation, military uses, commercial and residential developments, and roadway improvements. These projects are discussed below as relevant to the project's potential cumulative effects related to solid and hazardous wastes.

Geographic Scope

The geographic extent of the cumulative analysis of solid and hazardous wastes is within the I-10 corridor in Riverside County, as described in Section 4.1.4 (Cumulative Scenario). Past and ongoing development throughout the project area has introduced sources of solid and hazardous wastes which contribute to landfill use and capacity. Tables 4.1-1 and 4.1-2 identify all the existing and foreseeable projects within the cumulative scenario.

Table 4.21-1. Cumulative Projects within the Geographic Scope of Cumulative Analysis

Resource Area / BLM Program Area	Geographic Area of Consideration	Elements to Consider	BLM Authorized and Other Known County Projects/Actions/Activities
Wastes, Solid and Hazardous	Eastern Riverside County	Contribution to landfill use and capacity	All projects listed in Table 4.1-1 and 4.1-2 that would undergo construction for contribution to landfill. Projects with the most similar types of wastes include: • Desert Sunlight Solar Farm • Silverado Power Solar Project • Palen Solar Power Project • Blythe Solar Power Project • NextEra McCoy • McCoy Soleil • Genesis Solar Energy Project • Rice Solar Energy Project • Blythe Airport Solar I Project • Desert Quartzite • Blythe Mesa Solar I • Rio Mesa Solar Electric • Desert Center 50 Solar PV Project

Cumulative Effects Analysis

Most of the Riverside County projects listed in Tables 4.1-1 and 4.1-2 and identified on Figure 4.1-1 in Appendix A have either undergone independent environmental review pursuant to NEPA and/or CEQA or will do so prior to approval. Even if environmental review has not been completed for the cumulative projects described, their effects were considered in the cumulative effects analyses in this EIS.

A cumulative effect related to solid and hazardous wastes would only occur where the project and other projects would result in the same type of solid and hazardous wastes effect within the same timeframe and at the same location. As discussed in this section, there is sufficient disposal capacity through the RCWMD facilities to accommodate the project and other projects within the RCWMD for a minimum of 15 years. Therefore, the project would not result in

adverse cumulative effects associated with landfill use and capacity. In addition, wastes generated on-site would be handled and disposed of appropriately, and in accordance with laws and regulations and BMPs and mitigation measures identified in this analysis.

Potential effects associated with wastes generated on-site and the disposal of wastes generated on-site would be site-specific and would not have potential to combine with similar effects of other projects. The septic system and leach field used for wastewater disposal would be permitted and operated in compliance with existing laws and regulations; the project would not have the potential to result in cumulative effects associated with the septic system and leach field. Off-site disposal would not significantly reduce waste management capacity in the project area. Finally, with regards to hazardous wastes, implementation of required mitigation measures would ensure that there would be no unavoidable adverse effects from the project or any incremental contribution to adverse cumulative effects. With the implementation of required measures and adherence to all regulatory requirements, the incremental effect of the Proposed Action and Alternatives 5 through 7, and C through E related to solid and hazardous wastes would be minimal.

Because construction and project development would not occur, the No Action and No Project Alternatives (Alternatives 1, 2, 3, and A) would not contribute to any cumulative effects. In addition, Alternative B would not contribute to cumulative solid or hazardous waste effects, as the cumulative scenario assumes concurrent construction of the Desert Sunlight approved gen-tie and Alternative B conductor stringing using the same crew at the same time, with no additional work required for Alternative B beyond what is required for the Desert Sunlight gen-tie.

4.21.16 CEQA Considerations

This section is included in this EIS for future use by CEQA Lead and Responsible agencies, and is not required under NEPA.

CEQA Significance Criteria

The significance criteria listed below are from the Environmental Checklist Form in Appendix G of the CEQA Guidelines. These criteria are used to determine whether the project or alternative would result in significant effects to solid wastes under CEQA. CEQA significance criteria for hazardous materials and hazardous wastes are addressed in Section 4.13.16 (CEQA Considerations, Public Health and Safety). The proposed project and alternatives would result in a significant effect related to solid wastes if they would *not*:

WAST-1 Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs

WAST-2 Comply with federal, state, and local statutes and regulations related to solid waste.

CEQA Significance Determination

Because construction and project development would not occur under the No Action and No Project Alternatives (Alternatives 1, 2, 3, and A), these alternatives would not contribute to solid and hazardous waste impacts.

As described above, wastes generated by Alternatives 4 through 7 and B through E would be disposed of through RCWMD facilities. These facilities ensure that Riverside County has a minimum of 15 years of capacity, at any time, for future landfill disposal (RCWMD 2011).

Construction, operation and maintenance, and decommissioning of the proposed project or relevant alternatives would occur in compliance with laws and regulations, and BMPs relevant to the handling of solid wastes. The septic system and leach field used for wastewater disposal would be in compliance with County and RWQCB permitting requirements. Impacts related to hazardous wastes would be minimized by MM PHS-1 through MM PHS-6 (Hazardous Materials Management Plan, BMPs for hazardous materials, SPCC Plan, Environmental Health and Safety Plan, Emergency Response and Inventory Plan, Recycling and Disposal of Panels). Therefore, impacts related to Criterion WAST-1 and WAST-2 would be less than significant.

Cumulative Impacts. As described in Section 4.21.16, because of adequate available disposal capacity, compliance with applicable regulations, and the implementation of mitigation measures addressing hazardous wastes, the proposed project and alternatives would not represent a considerable contribution to any cumulative impacts related to solid and hazardous wastes.

4.22 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The BLM NEPA Handbook (H-1790-1 Sec. 9.2.9), the CEQ guidelines for implementing NEPA (40 CFR 1502.16), and CEQA Guidelines Section 15126.2 require a discussion of any irreversible or irretrievable commitments of resources which would be caused by implementation of the Proposed Action or one of the action alternatives; the relationship between short-term uses and long-term productivity of the environment (see Section 4.23); and any growth-inducing impacts (see Section 4.15).

Resources irreversibly or irretrievably committed to a proposed action are those used on a long-term or permanent basis. This includes the use of nonrenewable resources such as metal, wood, fuel, paper, aggregate and other natural resources. These resources are considered irretrievable in that they would be used for a proposed action when they could have been conserved or used for other purposes. Another irreversible or irretrievable commitment of resources could be the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment.

The Proposed Action or any action alternatives would irretrievably commit resources over the 30-year life of the project. Construction of the DHSP would require use of nonrenewable resources. During project operations, oil, gas, and other nonrenewable resources would be consumed for maintenance purposes, although on a limited basis. After 30 years, the DHSP could be decommissioned and the land returned to its pre-project state, or the facility owners may wish to work with the BLM to replace the old facilities with a new re-powering project on the same site. In the event that the project is decommissioned, some of the resources on site could be potentially retrieved for re-use or recycling. However, full site recovery to its pre-project state may not be possible given the 30-year life-span of the DHSP and the many unknown variables that could affect the site. Sensitive desert habitats have potentially lengthy recovery time from disturbances such as grading and site development.

The DHSP is a renewable energy project intended to generate solar energy to reduce reliance on fossil fuels. Over the 30-year life of the DHSP, this renewable energy project would contribute incrementally to the reduction in demand for fossil fuel used to generate electricity, thereby resulting in a positive effect of the commitment of nonrenewable resources to the DHSP.

4.23 SHORT-TERM VS. LONG-TERM PRODUCTIVITY OF THE ENVIRONMENT

The BLM NEPA Handbook (H-1790-1 Sec. 9.2.9) and the CEQ guidelines for implementing NEPA (40 CFR 1502.16) require a discussion of the relationship between short-term uses and long-term productivity of the environment from implementation of the proposed project or one of the action alternatives. "Short term" refers to the total duration of project, and "long term" refers to an indefinite period beyond the project for uses such as natural habitat. The specific impacts of the proposed project and any of the action alternatives vary in kind, intensity, and duration. The project involves tradeoffs between long-term productivity and short-term uses of the environment.

The development of the proposed project or any of the action alternatives would result in short-term uses of the environment typically found with solar energy development. Short-term impacts associated with construction, operation, and decommissioning activities are described in Chapter 4, Environmental Consequences, and include effects to the natural environment, cultural resources, recreation resources, and transportation. One long-term adverse effect of the DHSP is permanent damage to desert habitats, which would adversely affect the long-term productivity of the area, as described in Section 4.21. Mitigation Measure VEG-6 would provide off-site compensation to impacts to vegetation and habitat and compensation lands would be placed under conservation management reducing the long term detrimental effect of the proposed project and alternatives.

Short-term benefits of the DHSP include production of renewable energy. This benefit would be consistent with federal and state goals to increase production of renewable energy and help reduce dependence on fossil fuels. Based on the project expected generation of between 200,000 and 300,000 megawatt-hours (MWh) annually and a system-wide greenhouse gas (GHG) emission factor of 681 pounds of carbon dioxide equivalents per MWh (lbs CO2e/MWh) for electricity provided by California utilities (USEPA 2011) including SCE, the energy produced by the DHSP could displace up to 92,670 metric tons of CO2e per year (MTCO2e/year) that may otherwise be emitted by power plants currently generating electricity for the California system. This displacement of fossil fuel use could occur if the intermittent solar energy produced by the DHSP were fully integrated into the region-wide electrical grid and used to offset higher polluting power plants. The integration of renewable resources into the region-wide electrical grid is controlled by the California Independent System Operator (CAISO), and is beyond the control of the BLM or the project Applicant. Global climate change is expected to have long-term adverse impacts on the natural and human environment. To the extent that the DHSP could contribute to global reductions in GHGs, this would be a long-term benefit of the project in offsetting impacts related to global climate change.

4.24 SUMMARY OF UNAVOIDABLE ADVERSE EFFECTS

Table 4.24-1 summarizes unavoidable adverse effects of the proposed project and the action alternatives. Table 4.24-2 presents a summary of CEQA significant and unavoidable impacts, and is included in this EIS and CDCA Plan Amendment for future use by CEQA Lead and Responsible agencies. Because this project is being analyzed in an EIS under NEPA, there is no requirement for the BLM to determine significance, rather, the BLM must take a "hard look" at the impacts of the alternatives. Therefore, any determination of significance is a determination under CEQA, not NEPA.

Table 4.24-1. Summary of NEPA Unavoidable Adverse Effects

Impact Area	Impact	Description
Air Resources	Construction emissions	Construction of the project would generate emissions of particulate matter (PM2.5 and PM10), VOC, CO, and NOx. Mitigation Measures AIR-1 through AIR-4 would limit these emissions to the extent possible, but models suggest that residual impacts from PM10, VOC, CO, and NOx would be present event with mitigation. Impacts would be temporary, limited to the duration of construction activities.
Biology – Vegetation	On-site habitat loss	Construction and operation of the project would disturb vegetation and habitat during construction and operation. Mitigation measures VEG-1 through VEG-10 are expected to effectively mitigate the majority of the project's adverse impacts to wildlife habitat, although some residual impacts would remain
	Off-site dust	Dust and erosion related to construction, operation, and decommissioning of the project could not be completely contained within the project site, and could impact neighboring habitats, soil, and vegetation. Mitigation measures for biological resources and air quality would limit but not eliminate these impacts.
	On-site special status species	The project would directly remove several special status plants occurring on the project site. Mitigation Measure VEG-7 would reduce these impacts through off-site compensation, but it would not eliminate on-site impacts.
	State-jurisdictional streambeds	The project would impact state-jurisdictional streambeds on and off site through removal and degradation of habitat and vegetation. Mitigation measures for biological resources and water resources would limit, but not eliminate, these impacts.
Biology – Wildlife	On-site habitat loss	The project would disturb wildlife habitat during construction and operation. Impacts to habitat would be reduced by Mitigation Measures VEG-1 through VEG-10. Mitigation Measure VEG-6 specifically requires off-site compensatory habitat protection. Avoidance-related measures for wildlife would also reduce impacts. These measures are expected to effectively mitigate the majority of the project's adverse impacts to wildlife habitat, though some residual impacts would remain.
	Habitat fragmentation	Construction of the project would further fragment and impair the connectivity of wildlife habitat in the upper Chuckwalla Valley. Mitigation measures for wildlife, including Mitigation Measure WIL-9 (contribute to Desert Tortoise Population Connectivity Effectiveness Monitoring Plan), would reduce these effects, but the project would still result in habitat fragmentation.
	Effects on adjacent off-site habitat	Construction, O&M, and decommissioning would create noise, lighting, dust and other disturbances that would affect adjacent off-site habitat. These effects would be minimized by mitigation measures for noise, aesthetics, air quality, and biological resources. However, these impacts would not be eliminated.
	Displacement of wildlife	Wildlife displaced by the project would need to establish new home ranges and would compete for food and other resources with off-site wildlife. Mitigation measures for biological resources would reduce, but not eliminate, these impacts.

Table 4.24-1. Summary of NEPA Unavoidable Adverse Effects

Impact Area	Impact	Description
	Potential loss of birds during O&M	An unquantified number of birds could be killed during project O&M activities. Mitigation measures for biological resources, particularly Mitigation Measure WIL-6 (Bird and Bat Conservation Plan) would reduce, but not eliminate, these potential impacts.
Climate Change	No residual impacts	
Cultural	Adverse change to historic properties	The project would result in indirect impacts during construction, operation, and decommissioning to cultural resources, including adverse change to significance of historic properties. Mitigation Measures MM CUL-1 through MM CUL-9 would reduce impacts by developing and implementing a Memorandum of Agreement and Historic Properties Treatment Plan, requiring monitoring and training for all construction personnel, and treating/curating inadvertent discoveries.
Paleontological Resources	No residual impacts	
Fire and Fuels Management	No residual impacts	
Geology and Soils	No residual impacts	
Mineral Resources	No residual impacts	
Grazing	No residual impacts	
Wild Horses and Burros	No residual impacts	
Lands and Realty	Cumulative adverse change to land use along the I-10 corridor due to the scale of land use conversion	The project would contribute to large scale of land use conversion (over 52,000 acres or 2.5 percent of the land along the I-10 corridor).
Noise and Vibration	Increase in noise levels along Kaiser Road	The project would result in a substantial increase in traffic noise levels during construction and decommissioning along Kaiser Road north of Lake Tamarisk Road. Mitigation Measure NOI-1would limit construction activities to daylight hours; however, there would still be an unavoidable adverse effect from increased noise.
Public Health and Safety	No residual impacts	
Recreation	Effects on wilderness experience	The project would be visible from wilderness areas in the Coxcomb Mountains during construction, operation, and decommissioning. While Mitigation Measures VR-1 through VR-6 would reduce these impacts, there would still be an avoidable adverse effect on wilderness recreation.
Social and Economic Setting	No residual impacts	
Environmental Justice	No residual impacts	
Special Designations	No residual impacts	
Transportation and Public Access	No residual impacts	
Visual Resources	Land scarring and vegetation clearance	Construction of the project would require extensive land scarring and vegetation clearance. Mitigation Measures VR-1 and VR-2 would reduce the visual impacts of these activities, but would not eliminate impacts, which would be long-term and unavoidable.

Table 4.24-1. Summary of NEPA Unavoidable Adverse Effects

Impact Area	Impact	Description
	Structural visual contrast	The project site is visible from a large area and the project would introduce extensive structural visual contrast. Mitigation Measures VR-2 through VR-5 would reduce the impacts of this visual contrast, but unavoidable long-term adverse effects would remain.
	Effects on scenic vistas	The project would be visible from surrounding wilderness areas. Mitigation Measures VR-2 through VR-5 would reduce effects on scenic vistas, but unavoidable adverse effects would remain.
	Inconsistency with public policy	Although the levels of change caused by Alternative 4 would be allowed under the Interim VRM Class IV management objective, the solar facility would be inconsistent, after mitigation, several Riverside County General Plan policies
Water Resources	No residual impacts	
Solid and Hazardous Wastes	No residual impacts	

Table 4.24-2. CEQA Significant Unavoidable Impacts

Impact Area	Significance Criteria	Significant Unavoidable Impact	Description
Air Resources	AR-2	Construction emissions	Construction of the project would generate emissions of particulate matter (PM2.5 and PM10), VOC, CO, and NOx. Mitigation Measures AIR-1 through AIR-4 would limit these emissions to the extent possible, but residual impacts from PM10, VOC, CO, and NOx would still be present after mitigation. Significant, unavoidable impacts would be temporary; these impacts would be limited to the duration of construction activities.
Air Resources	AIR-3	Cumulatively considerable net increase of a criteria pollutant	Implementation of Mitigation Measures AIR-1 and AIR-2 would reduce fugitive dust emissions and engine NOx emissions. However, the daily construction VOC, CO, NOx, PM10 and PM2.5 emissions would exceed the SCAQMD thresholds, resulting in a cumulatively considerable net increase during project construction. Iimpacts to NOx and PM10 during construction would be temporarily significant and unavoidable.
Biology – Vegetation	VEG-1	Cumulative impacts to sensitive natural communities	Even with implementation of Mitigation Measures VEG-1 through VEG-10, the project would represent a considerable contribution to the cumulatively significant regional impacts to sensitive natural communities.
	VEG-2	Cumulative impacts to jurisdictional streambeds	Even with implementation of Mitigation Measures VEG-1 through VEG-10, the project would represent a considerable contribution to the cumulatively significant regional impacts state-jurisdictional streambeds.
Biology - Wildlife	WIL-1	Cumulative impacts to special-status species	Even with implementation of mitigation, the residual impacts of the project would represent a considerable contribution to cumulatively significant habitat loss for special-status wildlife species in the NECO planning area.
	WIL-2	Cumulative impacts to wildlife movement	Even with implementation of mitigation, the minor residual impacts of the project would represent a cumulatively considerable contribution to reduced wildlife movement and connectivity in the upper Chuckwalla Valley.
Climate Change		None	

Table 4.24-2. CEQA Significant Unavoidable Impacts

Impact Area	Significance Criteria	Significant Unavoidable Impact	Description
Cultural	CR-1 and CR-2	Adverse change to historic and archaeological resources	The project would result in direct and indirect impacts during construction, operation, and decommissioning to cultural resources, including adverse change to historic resources and adverse changes to archaeological resources. Mitigation Measures MM CUL-1 through MM CUL-9 would reduce impacts by developing and implementing a Memorandum of Agreement and Historic Properties Treatment Plan, requiring monitoring and training for all construction personnel, and treating/curating inadvertent discoveries. However, some impacts, particularly to the setting of the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), may be significant and unavoidable under CEQA.
Paleontological Resources		None	
Fire and Fuels Management		None	
Geology and Soils		None	
Mineral Resources		None	
Grazing		None	
Wild Horses and Burros		None	
Lands and Realty		None	
Noise and Vibration	NZ-4	Increase in noise levels along Kaiser Road	The project would result in a substantial increase in traffic noise levels during construction and decommissioning along Kaiser Road north of Lake Tamarisk Road. Mitigation Measure NOI-1would limit construction activities to daylight hours; however, there would still be a significant unavoidable impact from project construction.
Public Health and Safety		None	
Recreation		None	
Social and Economic Setting		None	
Environmental Justice		None	
Special Designations		None	No significant unavoidable impacts distinct from those analyzed in other sections.
Transportation and Public Access		None	
Visual Resources	V-1	Scenic vistas	Project would be prominently visible from elevated vantage points in the area, and the introduction of industrial character and structural visual contrast would result in significant unavoidable impacts to these scenic vistas.

Table 4.24-2. CEQA Significant Unavoidable Impacts

Impact Area	Significance Criteria	Significant Unavoidable Impact	Description
	V-3	Degrade visual character of the landscape	Project would introduce a prominent built facility with considerable industrial character into an existing landscape presently without such features, causing a substantial degradation of the existing visual character or quality of the site and its surrounding landscape when viewed from the elevated viewpoints in the wilderness areas.
	V-6	Inconsistency with local policies	The moderate to high degree of visual change that would be caused by the proposed solar farm would not be consistent with the following Riverside County General Plan policies: LU 4.1, LU 13.1, LU 13.3, LU 13.5, LU 13.8, LU 20.1, LU 20.2, LU 20.4, DCAP 2.3, DCAP 9.1, and DCAP 10.1.
	V-7	Cumulative visual alteration	The presence of the project would substantially contribute to cumulative visual alteration.
Water Resources		None	
Solid and Hazardous Wastes		None	