CHAPTER 4 – ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

As discussed in Chapter 1, the Project is subject to environmental review under the National Environmental Policy Act (NEPA). In addition, since the California Public Utilities Commission (CPUC) has permitting authority over the Red Bluff Substation portion of the Project, CPUC may use this EIS for its environmental review under the California Environmental Quality Act (CEQA). As a result, 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. Due to the similarity in information requirements for both NEPA and CEQA, the impacts analysis and mitigation measures that are described in this chapter serve both purposes.

The Proposed Action and alternatives described in Chapter 2 may result in direct, indirect, or cumulative effects on the physical, biological, and social components of the human environment. This chapter provides discussion of the anticipated environmental consequences (impacts) that may occur as a result of implementing the Proposed Action or one of the alternatives. Impacts may be direct, indirect, or cumulative. Direct impacts are those effects that are caused by the action and occur at the same time and place as the action. Indirect impacts are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable (40 CFR §1508.8). Cumulative impacts are those that result from the impact of the action when added to other past, present, and reasonably foreseeable future actions (40 CFR §1508.7).

Under NEPA, significance is defined by the Council on Environmental Quality (CEQ) (Section §1508.27) as a measure of the intensity and context of the effects of a major federal action on the human environment. The BLM NEPA Handbook reiterates this directive, stating that the document should "focus the discussion of effects on the context, intensity, and duration." Intensity refers to the severity or level of magnitude of impacts. Public health and safety, proximity to sensitive areas, level of controversy, unique risks, or potentially precedent-setting effects may all be considered in determining intensity of effect. Context means that the effects of an action must be analyzed within a framework or within physical or conceptual limits. Whenever possible, this document will differentiate between short-term and long-term impacts.

Significance criteria, the basis for which is set forth in the CEQA Guidelines Environmental Checklist (Appendix G) and CPUC policy, are identified for each environmental resource area. The significance criteria serve as a benchmark for determining if a project would result in significant adverse environmental impacts when evaluated against the baseline or existing environmental conditions. Impacts are assessed relative to each impact criterion to determine whether the project would have no impact, a less than significant impact, less than significant with mitigation, or a significant impact. Impacts are quantified to the extent possible. In addition, the determination of an impact's significance is derived from standards set by regulatory agencies on the federal, state, and local levels; knowledge of the effects of similar past projects; professional judgment; and plans and policies adopted by governmental agencies.

Because the CEQA significance criteria are more specific than those prescribed by NEPA, those criteria have been used as the primary basis for identifying potentially significant impacts in this EIS.

For significant impacts, mitigation measures are identified that would reduce those impacts. Both Section 1508.20 of the CEQ regulations for implementing NEPA and the State CEQA Guidelines §15370 define 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;[1]

(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.

If impacts remain significant after all feasible mitigation is considered, i.e., continue to exceed the threshold of significance identified in the impact criteria, the analysis concludes that the impact is significant and unavoidable.

This EIS has been drafted by the BLM to meet its needs from a regulatory and analytical perspective. As described above, the CPUC may also use this EIS for its environmental review under CEQA. To help facilitate the review of this document, some of the major distinctions between CEQA and NEPA are provided in Table 4.1-1.

The environmental analysis for each resource topic considered the issues raised during the public scoping period from January 13, 2010 to February 12, 2010. The analysis also reflects comments and suggestions made through consultation with federal, state, and local agencies, including the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG).

1 CEQA Guidelines § 15370(c) substitutes the word "impacted" for "affected."

Table 4.1-1
Differences between NEPA and CEQA Requirements

	CEQA	NEPA
Purpose	The purpose of an Environmental Impact Report (EIR) is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided. Each public agency shall mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever it is feasible to do so. If economic, social, or other conditions make it infeasible to mitigate one or more significant effects on the environment of a project, the project may nonetheless be carried out or approved at the discretion of a public agency if the project is otherwise permissible under applicable laws and regulations. (Pub. Resources Code § 21002.1.)	"NEPA procedures must ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken." (40 CFR §1500.1(b)) "NEPA's purpose is not to generate paperwork – even excellent paperwork – but to foster excellent action. The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore and enhance the environment." (40 CFR §1500.1(c))
Application	To all governmental agencies at all levels in California, including local agencies, regional agencies, and state agencies, boards, districts and commissions.	To all federal agencies.
Activities	All approvals or discretionary projects, which have not been exempted from CEQA by statute or regulation that may result in either a direct or reasonably foreseeable indirect physical change in the environment.	Whenever a federal agency proposes an action, grants a permit or agrees to fund or otherwise authorize any other entity to undertake an action that could possible affect the human environmental.

Table 4.1-1 (continued)
Differences between NEPA and CEQA Requirements

	CEQA	NEPA
Regulation	CEQA is codified at Public Resources Code § 21000 et seq. The Resources Agency has adopted Guidelines for CEQA in California Code of Regulations, Title 14, § 15000 et seq. Additionally, CPUC's General Order No. 131-D sets forth rules relating to the planning and construction of electric generation, transmission/power/distribution line facilities and substations located in California, including procedures for implementing CEQA.	The CEQ Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (NEPA) (40 CFR Parts 1500 – 1508). Also, BLM has adopted its own NEPA procedures; see the BLM NEPA Handbook (H-1790-1).
Documents	For projects that may result in potentially significant environmental impacts, an EIR must be prepared and certified by the lead agency prior to approving a project (14 Cal. Code Regs. § 15090). The lead agency must also make certain written "findings," based on substantial evidence, for every significant impact identified in the EIR prior to approving a project (14 Cal. Code Regs. § 15091). Further, if the lead agency approves a project which will result in significant effects that cannot be avoided or substantially lessened, it must issue a statement of overriding considerations (14 Cal. Code Regs. § 15093). Finally, the lead agency must adopt a program for monitoring or reporting on the revisions it has required in the project and any mitigation measures it has imposed (14 Cal. Code Regs. § 15097).	All major federal actions that results in significant impact(s) on the environment requires the preparation of an EIS. The federal agency decision on the action analyzed in an EIS is announced in a Record of Decision (ROD).
Baseline	An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time of the Notice of Preparation or preparation of the environmental analysis. This will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant (14 Cal. Code Regs. § 15125(a)).	The baseline under NEPA is the description of the Affected Environment. The EIS shall succinctly describe the environment of the area(s) to be affected by the alternatives under consideration (40 CFR §1502.15). The affected environment describes the environmental conditions and trends at the time the action would occur.

Table 4.1-1 (continued)
Differences between NEPA and CEQA Requirements

	CEQA	NEPA
Analysis	An EIR must identify and focus on the significant environmental effects of the proposed project. It must analyze direct, indirect and cumulative impacts, giving due consideration to both short-term and long-term effects (14 Cal. Code Regs. § 15126.2). The determination of whether a project may have a significant effect on the environment must be based on substantial evidence, in light of the whole record before a lead agency, and, to the extent possible, on scientific and factual data (14 Cal. Code Regs. § 15064).	An EIS shall analyze and describe the direct, indirect (see 40 CFR §1508.8) and cumulative impacts (see 40 CFR §1508.7) on the quality of the human environment of the proposed action and each alternative analyzed in detail, including the no action alternative. Include, for the proposal, unavoidable adverse impacts, the relationship between short-term use and long-term productivity, and any irreversible or irretrievable commitments of resources (40 CFR §1502.16).
Unavailable Information	Drafting an EIR or preparing a Negative Declaration necessarily involves some degree of forecasting. While foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can (14 Cal. Code Regs. § 15144). If, after thorough investigation, a lead agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact (14 Cal. Code Regs. § 15145).	Must acknowledge whether there is incomplete or unavailable information regarding reasonably foreseeable significant adverse impacts. Must obtain such information, with original research if necessary, unless costs of obtaining it are "exorbitant" or the "means to obtain it are unknown." If unavailable, EIS must evaluate the impacts based on theoretical approaches generally accepted in the scientific community. (40 CFR §1502.22)
Economic and Social Impacts	Social and economic effects of a project shall not be treated as significant effects on the environment, except where such effects result in a direct or indirect physical change (14 Cal. Code Regs. § 15131).	Must analyze the positive and negative economic and social effects of each alternative analyzed, where any such impact has a related physical or human impact. Human impacts may include economic, social or health impacts. In fulfillment of Environmental Justice requirements, identify any disproportionate adverse effect on low-income or minority populations associated with one or more alternatives.

Table 4.1-1 (continued)
Differences between NEPA and CEQA Requirements

	CEQA	NEPA
Alternatives	An EIR must describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly achieve the objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives (14 Cal. Code Regs. § 15126.6(a)). The EIR must include "sufficient information…to allow meaningful evaluation, analysis and comparison with the proposed project." (14 Cal. Code Regs. § 15126.6(d)) The EIR must evaluate a "no project" alternative (14 Cal. Code Regs. § 15126.6(e)).	An EIS must rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated. Devote substantial treatment to each alternative considered in detail. Include alternatives not within the jurisdiction of the lead agency. Include the alternative of no action. Identify the agency preferred alternative. (40 CFR §1502.14)
Mitigation Measures	An EIR must describe feasible measures which could minimize significant adverse impacts. Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally-binding instruments (14 Cal. Code Regs. § 15126.4).	An EIS must include appropriate mitigation measures not already included in the proposed action or alternatives. See 40 CFR §1502.14(f). Also see the CEQ definition of mitigation at 40 CFR §1508.20.

The impact analysis in this chapter is based on the following assumptions:

- Implementation of all best management practices as described in the proposed action.
- Compliance with all laws regulations and ordinances, etc.
- Differentiation of long-term versus short-term and long-term environmental effects.
- Internal impacts are based on projected operations of approximately 30 years,

In each of the resource sections in this chapter, the applicable CEQA significance criteria are presented. For each alternative, the significance of the impacts relative to each of these criteria is evaluated. The resources evaluated in this chapter are the same as those discussed in Chapter 3, Affected Environment.

4.2 AIR RESOURCES

4.2.1 Methodology for Analysis

Air quality issues addressed for the various alternatives were identified by independent evaluation of project-related impacts and review of comments received during the EIS scoping process. The identified issues are:

- Criteria pollutant emissions from on-site construction activity and construction-related vehicle traffic;
- Criteria pollutant emissions from facility operations and operational vehicle traffic;
- Net change in wind erosion at the Solar Farm site following construction;
- Compliance with regulatory requirements;
- Effects of fugitive dust on night sky visibility; and
- Ozone generation from corona discharge along the proposed Gen-Tie Line.

Analysis of these issues was performed through quantitative analysis of expected emissions, review of regulatory requirements, and qualitative analyses for issues that did not lend themselves to quantitative evaluation. Quantitative analyses were prepared to address construction-related emissions, emissions from facility operations, and the net change in wind erosion conditions at the Solar Farm site. Qualitative evaluations were prepared to address issues related to regulatory compliance, night sky visibility, and ozone from corona discharge along transmission lines. Additional details regarding impact assessment methodologies are discussed under relevant impact topics.

The region of interest for air quality depends on the air pollutants of concern. Directly emitted pollutants that do not undergo chemical reactions to form other pollutants (such as carbon monoxide) generally have a localized region of interest, since pollutant concentrations become dispersed and diluted as winds transport them away from the emission source. The region of interest for carbon monoxide emissions rarely extends more than 0.25 mile from the location of the emissions. Pollutants that undergo chemical reactions in the atmosphere to produce other air pollutants have a much larger region of interest that depends on the time scale over which the chemical reactions occur. Ozone is a secondary pollutant formed from chemical reactions between organic compounds and nitrogen oxides in the presence of sunlight. The time required for these chemical reactions (generally six to ten hours or more) allows emissions to be dispersed and transported over fairly large distances, depending on weather conditions.

Suspended particulate matter (PM_{10} and $PM_{2.5}$) is composed of a mixture of directly emitted pollutants and compounds formed from chemical reactions involving organic compounds, nitrogen oxides, and sulfur oxides. The directly emitted components (mostly fugitive dust and some combustion products) have a fairly localized region of interest while the components formed from chemical reactions have a much larger region of interest. For construction-related activities, the region of interest for directly emitted PM_{10} and $PM_{2.5}$ is typically less than one mile from the construction site. The region of interest for emissions that react to form chemically generated particulate matter is comparable to the region of interest for ozone precursors.

Table 4.2-1 compares major features of the action alternatives with an emphasis on features relevant to construction activities. The data in Table 4.2-1 reflect recent revisions to the design plans for the Red Bluff Substation. Emissions analyses for the Red Bluff Substation as presented in this EIS were based on earlier plans that specified a substation site of 90 acres rather than 75 acres. Consequently, the emissions analyses for the Red Bluff Substation as presented in this EIS represent a conservative analysis.

Table 4.2-1
Comparison of Action Alternative Features Relevant to Air Resources

Project Component	Parameter	Alternative 1	Alternative 2	Alternative 3
Solar Farm	Site Acres	4,245 acres	4,245 acres	3,045 acres
Solar Farm	Miles of Perimeter Fencing	19.9 miles	19.9 miles	9.5 miles
Solar Farm	Direct Ground Coverage by Solar Panels	1,400 acres	1,400 acres	1,037 acres
Solar Farm	Total Surface Coverage by Project Features	1,443 acres	1,443 acres	1,074 acres
Solar Farm	Open Portion of Developed Site	2,802 acres	2,802 Acres	1,972 acres
Solar Farm	De-compaction Area Between Solar Arrays	1,535 acres	1,535 acres	1,192 acres
Solar Farm	Distance to Closest Existing Residence	1,175 feet	1,175 feet	1,175 feet
Gen-Tie Transmission Line	Corridor Length	12.2 miles	9.5 miles	10 miles
Gen-Tie Transmission Line	Corridor Acres	233 acres	185 acres	189 acres
Gen-Tie Transmission Line	Number of Transmission Towers	73	55	58
Gen-Tie Transmission Line	Construction Disturbance Area	76.7 acres	62.3 acres	62.1 acres
Gen-Tie Transmission Line	Permanent Disturbance Area	18 acres	11 acres	23 acres
Red Bluff Substation	Substation Site Acres	75 acres	75 acres	75 acres
Red Bluff Substation	Adjacent Drainage Facility Areas	20 acres	11 acres	20 acres
Red Bluff Substation	Additional Staging Area	10 acres	10 acres	10 acres
Red Bluff Substation	Telecommunications Site Area	0.22 acres	0.22 acres	0.22 acres
Red Bluff Substation	Transmission Line Acres	5 acres	2.23 acres	5 acres
Red Bluff Substation	Distribution Line Acres	8.28 acres	0.12 acres	8.28 acres
Red Bluff Substation	Access Road Length	21,100 feet	1,800 feet	20,000 feet
Red Bluff Substation	Total Construction Disturbance Area	165.4 acres	118.2 acres	165.4 acres
Red Bluff Substation	Permanently Disturbed Area	127.6 acres	89.6 acres	127.6 acres

4.2.2 CEQA Significance Criteria

Under CEQA, the proposed Project would have a significant impact on air resources if it would:

- AQ-1: Conflict with or obstruct implementation of any applicable air quality management plan.
- AQ-2: Conflict with local air pollution control regulations.
- AQ-3: Generate annual emission quantities that exceed any applicable Clean Air Act (CAA) conformity threshold or, in areas with no nonattainment or maintenance designations, that exceed the numerical values of conformity thresholds applied to maintenance areas.
- AQ-4: Generate emission quantities that exceed adopted impact significance criteria established by the applicable air pollution control district or air quality management district.
- AQ-5: Create new violations of any federal or state ambient air quality standard or contribute substantially to an existing or projected violation of any state or federal ambient air quality standard.
- AQ-6: Expose sensitive receptors to hazardous air pollutant concentrations that would result in an incremental increase in cancer risk or other health risks that exceeds criteria adopted by relevant local, state, or federal air quality management agencies. Sensitive receptors for air quality issues include residential, transient lodging, educational, and health care land uses, plus other land uses (such as retail, office, or local park uses) that include the presence of numerous individuals for a significant part of the day.
- AQ-7: Create objectionable odors affecting a substantial number of people.

The Project area has no nonattainment or maintenance designations for any federal ambient air quality standard. Consequently, formal CAA conformity requirements do not apply to federal agency actions related to the Project alternatives. However, the CAA conformity thresholds provide a useful indicator of significant annual emissions. The CAA conformity thresholds for maintenance areas (locations that currently meet federal air quality standards but which violated the standards in prior years) are generally 100 tons per year per pollutant.

The SCAQMD has adopted regional emissions significance thresholds for construction activities and for project-related operational emissions (SCAQMD 2009). The SCAQMD regional emissions significance thresholds are summarized in Table 4.2-2. The Project area is within the Mojave Desert Air Basin, but emissions from traffic associated with Project construction and operation would occur in all three air basins noted in Table 4.2-2.

Table 4.2-2
SCAQMD Regional Emissions Significance Thresholds

Pollutant	South Coast Air Basin Thresholds, Pounds per Day Construction / Operation	Salton Sea Air Basin Thresholds, Pounds per Day Construction / Operation	Mojave Desert Air Basin Thresholds, Pounds per Day Construction / Operation
Reactive Organic Compounds	75 / 55	75 / 75	75 / 75
Nitrogen Oxides	100 / 55	100 / 100	100 / 100
Carbon Monoxide	550 / 550	550 / 550	550 / 550
Sulfur Oxides	150 / 150	150 / 150	150 / 150
Inhalable Particulate Matter (PM_{10})	150 / 150	150 / 150	150 / 150
Fine Particulate Matter ($PM_{2.5}$)	55 / 55	55 / 55	55 / 55
Lead	3 / 3	3 / 3	3 / 3

Source: SCAQMD 2009

The MDAQMD also has adopted emissions impact significance thresholds for projects in its jurisdiction. These thresholds (MDAQMD 2009) are set as annual thresholds that should be converted to an equivalent daily basis if a project has construction or operational phases shorter than one year. The MDAQMD thresholds are summarized in Table 4.2-3.

Table 4.2-3
MDAQMD Emissions Significance Thresholds

Pollutant	Annual Thresholds, Tons per Year	Daily Threshold, 7-Day Activity Weeks, Pounds per Day	Daily Threshold, 5-Day Activity Weeks, Pounds per Day
Reactive Organic Compounds	25	137	192
Nitrogen Oxides	25	137	192
Carbon Monoxide	100	548	769
Sulfur Oxides	25	137	192
Inhalable Particulate Matter (PM10)	15	82	115
Fine Particulate Matter (PM2.5)	15	82	115
Hydrogen Sulfide	10	54	77
Lead	0.6	3	4.6

Source: MDAQMD 2009

Project facilities would all be within the jurisdiction of the SCAQMD. The only project-related emissions that would occur within the MDAQMD jurisdiction would be a portion of the emissions from project-related vehicle traffic that originates east of the project area (generally either in the Blythe area or from states further to the east).

In addition to the regional emissions significance thresholds summarized in Table 4.2-2, the SCAQMD has identified voluntary local air quality impact significance thresholds that can be used to supplement the regional air quality impact significance thresholds (SCAQMD 2008b, 2008c). These local air quality impact significance thresholds are voluntary on the part of the lead agency, and are typically used when there are sensitive receptors close to the project site. Separate sets of thresholds are provided for construction emissions and operational emissions. The voluntary localized emissions thresholds vary by geographic portion of the SCAQMD jurisdiction, by project emissions area size, and by distance from emissions area boundaries. Default significance thresholds are provided for active emission source area sizes of 1 acre, 2 acres, and 5 acres, and for distance of 82 feet (25 meters), 164 feet (50 meters), 328 feet (100 meters), 656 feet (200 meters), and 1,640 feet (500 meters) from the emissions area boundary, assuming that the emissions area can be treated as an area or volume source with emissions distributed across the emissions area rather than concentrated at a stack location within the site.

The Solar Farm site has only a few scattered rural residences within one mile of the site (refer to Figure 3.10-1 in the Noise section of Chapter 3). The closest residence is about 1,175 feet from the proposed Solar Farm property line. All other nearby homes are 0.5 mile or farther away. Homes along Kaiser Road to the west of the proposed Solar Farm are between 0.5 and 1 mile from the site. The closest home to the southeast is more than 1 mile from the site. Homes near the MWD Eagle Mountain Pumping Plant are about 1.75 miles away. The Eagle Mountain Elementary School and the Eagle Mountain Village residential area are about 2.5 miles west-northwest of the proposed Solar Farm site. The Lake Tamarisk development is about 4 miles south, and the community of Desert Center is about 6 miles south of the proposed Solar Farm site.

Construction activity at the Solar Farm site would be staged in a sequence of subareas across the site over the course of the 26-month construction period. Thus, active construction areas would not affect the entire site at any one time. Along the western side of the proposed Solar Farm site, there would be approximately 100 feet between the property line and the closest solar modules. The area between the western property line and the solar arrays would include a tortoise exclusion fence, a drainage and debris control channel with a gabion wall, and an interior security fence. A gabion wall is essentially a rectangular wire mesh structure filled with rock that provides a stabilized inner or outer wall for the drainage and debris control channel.

Construction of the Solar Farm would involve a few periods when construction activity would occur about 1,200 to 1,300 feet from the closest residence to the west (installation of perimeter fencing, construction of drainage and debris basins, construction of the closest solar array modules, and de-compaction of soils between solar array module at the end of construction). For most of the 26-month construction period, however, construction activity at the proposed Solar Farm site would be well over 2,000 feet from the nearest residence to the west and over two miles from the nearest residence southeast of the site. Only a small portion of the overall construction activity would occur within half a mile of the nearest residence west of the proposed Solar Farm site.

Table 4.2-4 summarizes the default localized significance threshold values for eastern Riverside County using the 1,640-foot receptor distance.

Table 4.2-4
SCAQMD Voluntary Localized Significance Emissions Thresholds for Eastern Riverside County

Pollutant	Distance from emissions area, feet	1 Acre*	2 Acres*	5 Acres*	1 Acre**	2 Acres**	5 Acres**
Nitrogen Oxides	1,640	733	769	875	733	769	875
Carbon Monoxide	1,640	24,417	26,212	31,115	24,417	26,212	31,115
PM10	1,640	214	223	248	52	54	60
PM2.5	1,640	105	112	128	26	27	33

* Thresholds for On-Site Construction Emissions, pounds per day
** Thresholds for On-Site Operational Emissions, pounds per day
Note: There appear to be several typographical errors or reversed entries in the SCAQMD construction and operational PM10 emissions threshold tables, including discrepancies for the 2-acre site size in Eastern Riverside County. An adjusted operational value is presented in this table based on extrapolation from the construction emissions thresholds.
Source: SCAQMD 2008c.

As can be seen from Table 4.2-4, the localized emissions significance thresholds increase with increasing emissions area size. For project sites with emissions coming from more than 5 acres on any given day, the comparable emissions thresholds would be larger than the values for the 5-acre sites. The localized emissions significance thresholds presented in Table 4.2-4 are based on dispersion modeling analyses conducted by the SCAQMD to identify potential localized air pollutant impacts. The low number of sensitive receptors near the Project site does not warrant project-specific dispersion modeling analyses to identify project-specific localized emissions significance thresholds. Because there are so few sensitive receptors close to the proposed Project site, the default thresholds for the 1,640-foot distance from a 5-acre emissions area have been used in this document as a localized significance threshold factor. Given the average distance to actual construction activity and the typical size of areas subject to significant construction activity on any single day, the default 5-acre site thresholds provide a conservative screening value.

A comparison of Table 4.2-2 and Table 4.2-4 shows that for construction activity, the regional emissions significance thresholds are more stringent than the localized significance thresholds at all project sizes. For operational activity, the regional emissions significance thresholds are more stringent than the localized significance thresholds for nitrogen oxides and carbon monoxide at all project sizes. For PM10, the localized significance thresholds are more stringent than the regional thresholds for project sizes under 5 acres, and less stringent than the regional thresholds for project sizes of 5 acres or more. For PM2.5, the localized emissions significance thresholds are more stringent than the regional thresholds at all project sizes.

4.2.3 Alternative 1 – Proposed Action

Construction

Solar Farm Layout B

Criteria Pollutant Emissions from On-Site Construction Activity. On-site construction activity impacts have been evaluated using a detailed spreadsheet model. The spreadsheet model calculates criteria pollutant emissions, diesel particulate emissions, and greenhouse gas emissions from construction or demolition activities and equipment. The model provides criteria pollutant emission estimates for reactive organic compounds, nitrogen oxides, carbon monoxide, sulfur oxides, inhalable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$) and diesel particulate matter (DPM). Particulate matter emissions from diesel engines contain known and suspected carcinogens, and consequently have been designated as a toxic air contaminant by CARB. The model also estimates emissions for three greenhouse gases: carbon dioxide, methane, and nitrous oxide. The spreadsheet model uses a conventional approach to estimating emissions from construction equipment and activity. In a normal application, users:

- Divide the construction or demolition project into activity phases that have similar equipment requirements;
- Identify equipment types needed for each construction or demolition phase;
- Identify how many items of each type will be needed, the typical horsepower rating for the item, and the typical engine load factor;
- Identify the hours per day with active use for each equipment item;
- Identify the fraction of each use hour when the equipment will actually be operating;
- Identify the overall disturbed area size for each phase of construction or demolition activity;
- Identify the overall duration of each construction or demolition phase;
- Identify the typical area size that will be disturbed on a given day during each phase of construction or demolition activity;
- Identify typical fugitive dust emission rates for each phase of construction or demolition activity; and
- Identify which construction or demolition phases partially or completely overlap with each other.

The version of the spreadsheet model used for this EIS includes an equipment database with 514 entries covering 114 basic equipment types. Entries for each equipment type are subdivided into engine size and fuel type categories (diesel, gasoline, and compressed gas fuels). Engine size categories used in the equipment database correlate with emission standards that have been adopted in recent years by EPA and CARB. The generalized fugitive dust emission rates used in the spreadsheet model account for several sources of fugitive dust: direct soil disturbance by construction equipment, earthmoving activities, and wind erosion from disturbed areas. Appendix D-1 provides a more detailed explanation of the spreadsheet model.

Solar Farm development would occur over a 26-month period, with construction activity undertaken as a rolling sequence of activity on different subareas of the site. Construction would generally progress as incremental work areas from the south end to the north end of the project site. Tortoise exclusion fencing of the entire site would be the initial phase of activity, followed by threatened species removals and relocations. Temporary construction offices, sanitary facilities, and water supply facilities would be established prior to initiating subarea construction activities. Incremental construction of access roads and staging areas would generally lead the main construction activity sequence, followed by site clearing and grading, which would be followed by various facility construction activity stages. For analysis purposes, it was assumed that construction activity would be initiated on about 11 acres per day (55.2 acres per week). The overall construction process was analyzed in terms of the following 18 construction phases:

- Tortoise exclusion fencing;
- Access roads and staging areas;
- Temporary construction offices, water supply, and sanitary facilities;
- Security fencing and west side debris and drainage basins;
- Vegetation (site) clearing;
- Site grading;
- Installation of array support posts;
- Trenching and underground power cable installation;
- Soil compacting and dust palliative application;
- Installation of on-site power poles;
- Installation of on-site switchgear;
- Construction of the On-site Substation;
- Solar array assembly;
- Installation of on-site overhead power lines;
- Construction of permanent buildings;
- Functional testing;
- De-compaction of areas between solar arrays and dust palliative application; and
- Site cleanup.

Construction activity would generally occur over a standard five-day workweek with activity limited to daytime hours. 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.

Fugitive dust generation estimates from the spreadsheet model reflect the texture characteristics of on-site soils as identified by the Project's geotechnical report (Earth Systems Southwest 2010b). Particle size analyses showed combined clay plus silt fractions ranging from 2 percent to 13 percent in samples collected from different portions of the site, with only one sample showing more than 7 percent clay plus silt. A conservative average of 7 percent clay plus silt was used in the spreadsheet model. Dust control by watering of disturbed areas (generally at least twice a day) was assumed to provide 50 percent control of fugitive dust for the early construction phases. A hygroscopic dust control agent (a magnesium chloride solution such as CHLOR-TEX) would be applied to access roads and staging areas, resulting in an estimated 75 percent control of fugitive dust from those areas. A different dust control product (a biodegradable organic mulch mixture product such as ECCO-TEX) would be applied to open portions of the site during the soil compaction stage of construction, achieving an estimated 75 percent control of fugitive dust during that and subsequent stages of construction activity. After completion of facility construction, the areas between the solar arrays would be de-compacted and given another dust palliative treatment (using a biodegradable organic mulch mixture product such as ECCO-TEX).

Emission estimates for on-site construction activity are summarized in a series of tables below. Table 4.2-5, Table 4.2-6, and Table 4.2-7 summarize annual emissions in tons per year for 2011, 2012, and 2013, respectively. Table 4.2-8, Table 4.2-9, and Table 4.2-10 summarize average daily emissions in pounds per day for 2011, 2012, and 2013, respectively. Additional details concerning the construction emissions analyses are provided in Appendix D-2.

Table 4.2-5
Summary of 2011 Annual On-Site Construction Emissions for Solar Farm Layout B

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Tortoise Exclusion Fencing	0.07	0.35	0.55	0.01	0.04	0.03	0.02
Access Roads and Staging Areas	0.45	3.60	3.46	0.18	0.35	0.30	0.32
Construction Offices and Water/Sanitation Facilities	0.11	0.74	0.54	0.03	0.34	0.11	0.05
Security Fencing and Debris Basins	0.15	0.65	1.38	0.03	0.10	0.05	0.04
Site Clearing	0.54	3.11	3.45	0.14	2.61	0.70	0.24
Site Grading	1.76	16.67	13.70	1.20	4.27	2.23	1.91
Array Support Posts	0.39	3.46	3.48	0.08	1.76	0.49	0.19
Trenching and Underground Cables	0.37	2.27	2.82	0.09	0.68	0.25	0.16
Soil Compacting and Dust Palliative	0.58	5.33	5.10	0.37	1.03	0.57	0.51
On-Site Power Poles	0.05	0.15	0.47	0.01	0.02	0.01	0.01
Switchgear Facilities	0.18	0.78	1.64	0.04	0.08	0.07	0.07
On-Site Substation	0.17	0.56	1.73	0.03	0.26	0.09	0.05
Solar Array Assemblies	2.69	3.60	29.61	0.20	0.74	0.31	0.20
On-Site Overhead Power Lines	0.05	0.49	0.38	0.02	0.04	0.04	0.04
2011 Totals	**7.56**	**41.77**	**68.34**	**2.44**	**12.32**	**5.24**	**3.82**

* Annual Emissions For 2011, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-6
Summary of 2012 Annual On-Site Construction Emissions for Solar Farm Layout B

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Access Roads and Staging Areas	0.13	0.98	0.98	0.04	0.10	0.08	0.08
Site Clearing	0.58	3.27	3.52	0.14	2.87	0.76	0.25
Site Grading	1.85	17.35	14.85	1.21	4.62	2.36	1.99
Array Support Posts	0.54	4.79	4.72	0.11	2.47	0.69	0.27
Trenching and Underground Cables	0.46	2.78	3.46	0.09	0.93	0.33	0.20
Soil Compacting and Dust Palliative	0.82	7.32	7.58	0.46	1.53	0.83	0.73
On-Site Power Poles	0.06	0.19	0.55	0.01	0.02	0.02	0.02
Switchgear Facilities	0.25	1.11	2.17	0.06	0.10	0.09	0.10
Solar Array Assemblies	3.82	5.09	36.28	0.28	1.13	0.46	0.29
On-Site Overhead Power Lines	0.08	0.70	0.59	0.03	0.06	0.05	0.06
Permanent Buildings	0.06	0.26	0.41	0.01	0.12	0.04	0.02
Functional Testing	0.35	1.25	2.86	0.02	0.12	0.06	0.05
2012 Totals	**9.00**	**45.09**	**77.98**	**2.46**	**14.08**	**5.77**	**4.05**

* Annual Emissions For 2012, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-7
Summary of 2013 Annual On-Site Construction Emissions for Solar Farm Layout B

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Functional Testing	0.02	0.12	0.15	0.00	0.01	0.01	0.00
De-Compaction and Dust Palliative	0.05	0.42	0.43	0.02	0.52	0.13	0.04
Site Cleanup	0.02	0.07	0.13	0.00	0.04	0.01	0.01
2013 Totals	**0.10**	**0.61**	**0.72**	**0.02**	**0.58**	**0.15**	**0.05**

* Annual Emissions For 2013, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-8
Summary of 2011 Daily On-Site Construction Emissions for Solar Farm Layout B

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Tortoise Exclusion Fencing	1.53	8.21	12.91	0.33	1.07	0.61	0.55
Access Roads and Staging Areas	10.21	80.82	77.80	4.09	7.85	6.71	7.13
Construction Offices and Water/Sanitation Facilities	5.10	34.40	25.34	1.55	16.08	5.04	2.53
Security Fencing and Debris Basins	2.30	10.11	21.47	0.46	1.51	0.81	0.69
Site Clearing	6.79	38.94	43.09	1.75	33.54	8.88	3.01
Site Grading	22.03	208.34	171.29	15.03	54.36	28.04	23.83
Array Support Posts	5.64	49.41	49.76	1.21	25.55	7.03	2.65
Trenching and Underground Cables	5.26	32.44	40.35	1.24	9.95	3.66	2.31
Soil Compacting and Dust Palliative	8.32	76.19	72.86	5.23	14.95	8.26	7.31
On-Site Power Poles	1.89	6.12	19.37	0.34	0.65	0.52	0.53
Switchgear Facilities	2.53	11.17	23.49	0.61	1.08	0.97	1.03
On-Site Substation	7.81	26.21	80.31	1.38	12.32	4.07	2.17
Solar Array Assemblies	38.41	51.43	423.05	2.80	10.85	4.49	2.89
On-Site Overhead Power Lines	2.21	20.15	15.56	0.94	1.70	1.49	1.60
2011 Maximum Day Totals	**120.04**	**653.95**	**1,076.64**	**36.95**	**191.47**	**80.59**	**58.23**

* Average Daily Emissions For 2011, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases overlap at some point during a construction year due to different activities occurring on multiple subareas, although the construction offices phase probably would not overlap with all of the other phases.
Source: Tetra Tech analyses

Table 4.2-9
Summary of 2012 Daily On-Site Construction Emissions for Solar Farm Layout B

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Access Roads and Staging Areas	8.58	64.13	63.99	2.88	6.72	5.19	5.33
Site Clearing	6.40	35.93	38.83	1.49	33.57	8.71	2.75
Site Grading	20.58	192.73	164.96	13.40	52.93	26.52	22.11
Array Support Posts	5.41	47.86	47.24	1.12	25.79	7.10	2.68
Trenching and Underground Cables	4.63	27.84	34.59	0.95	9.67	3.35	1.96
Soil Compacting and Dust Palliative	7.43	66.58	68.89	4.23	14.35	7.66	6.64
On-Site Power Poles	1.71	5.50	15.71	0.28	0.58	0.46	0.47
Switchgear Facilities	2.25	9.95	19.64	0.49	0.94	0.84	0.90
Solar Array Assemblies	34.75	46.23	329.84	2.52	10.66	4.27	2.64
On-Site Overhead Power Lines	2.03	18.14	15.34	0.76	1.57	1.37	1.46
Permanent Buildings	2.07	9.67	15.11	0.39	4.80	1.52	0.77
Functional Testing	3.51	12.53	28.62	0.19	1.22	0.62	0.50
2012 Maximum Day Totals	**99.34**	**537.09**	**842.75**	**28.70**	**162.80**	**67.60**	**48.22**

* Average Daily Emissions For 2012, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases overlap at some point during a construction year due to different activities occurring on multiple subareas.
Source: Tetra Tech analyses

Table 4.2-10
Summary of 2013 Daily On-Site Construction Emissions for Solar Farm Layout B

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Functional Testing	2.20	11.78	13.98	0.11	1.17	0.57	0.46
De-Compaction and Dust Palliative	4.95	37.12	38.60	1.65	54.52	13.32	3.34
Site Cleanup	1.75	6.02	12.44	0.37	3.97	1.25	0.62
2013 Maximum Day Totals	**8.90**	**54.93**	**65.01**	**2.13**	**59.66**	**15.14**	**4.42**

* Average Daily Emissions For 2013, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases overlap at some point during a construction year due to different activities occurring on multiple subareas.
Source: Tetra Tech analyses

Criteria Pollutant Emissions from Construction-Related Vehicle Traffic for Solar Farm Layout B. Construction-related traffic would include two major components: heavy truck traffic and construction worker commute traffic. The construction emissions spreadsheet model was used to generate estimates of off-site truck trips and construction worker traffic according to project component and construction phase. The traffic estimates from the spreadsheet model were correlated with information provided by Sunlight.

Off-site truck traffic for the Solar Farm would include equipment transporters, flatbed trucks, dump trucks, and cement mixer trucks coming from a variety of locations. Deliveries of many equipment components would originate from outside California. The emissions analyses for this EIS were limited to the portions of those truck trips occurring within California.

Construction worker commute traffic was analyzed in terms of several components. Sunlight plans to provide a shuttle bus system transport most construction workers to and from the Solar Farm site, with shuttle assembly points in the Palm Springs and Blythe areas. Some workers, however, would commute to the Solar Farm site in personal vehicles, either by choice, because they miss the shuttle connection, or because their travel route makes it inconvenient to use the shuttle buses. The analysis assumed that 10.5 percent of workers would use personal vehicles, and that 40 percent of those workers would carpool with two workers per vehicle. The remaining 89.5 percent of workers were assumed to use the shuttle buses. To provide a conservative analysis, it was assumed that the 20-passenger shuttles would have an average occupancy of 15 workers per vehicle. Workers who use the shuttle bus system would still need to drive to and from the shuttle assembly points. It was assumed that 40 percent of those trips would be by 2-person carpools.

Emission estimates for construction-related vehicle traffic were prepared using version 9.2.4 of the URBEMIS2007 model (Jones and Stokes Associates 2008) and supplemental spreadsheet calculations. URBEMIS was used to generate a set of average daily emission rates for a nominal 15,000 miles of vehicle travel (200 trips of 75 miles) for each of several vehicle mixes. Since a large fraction of total vehicle travel would occur on freeways and other state highways, an average speed of 55 mph was used for all URBEMIS runs. Separate URBEMIS runs were performed for summer and winter temperature conditions in each of three analysis years (2011, 2012, and 2013). The summer and winter emission rate results were averaged to provide annual average emission rates. The generalized emission rates were then scaled to actual travel estimates using spreadsheet analyses. Table 4.2-11 summarizes some of the key input parameters used for the URBEMIS emissions estimates. Additional details of the vehicle emissions analyses are provided in Appendix D-3.

Table 4.2-11
Summary of Generalized URBEMIS Setups

URBEMIS Run Category	Vehicle Type Mix	Fuel Mix	Input Daily 1-Way Trips	Input Average Trip Distance, miles	Average Vehicle Speed, mph
Personal Vehicles	25.6% LDA	Default	200	75	55
Personal Vehicles	16.3% LDT1	Default	200	75	55
Personal Vehicles	37.4% LDT2	Default	200	75	55
Personal Vehicles	20.7% MDT	Default	200	75	55
Shuttle Buses	100% LHT2	100% Gasoline	200	75	55
Medium-Heavy Trucks	100% MHD	100% Diesel	200	75	55
Heavy-Heavy Trucks	100% HHD	Default	200	75	55

LDA = light duty autos
LDT1 = pickup trucks, vans, and sport utility vehicles, gross vehicle weight rating up to 3,750 pounds
LDT2 = pickup trucks, vans, and sport utility vehicles, gross vehicle weight rating of 3,751 – 5,750 pounds
MDT = pickup trucks, vans, and sport utility vehicles, gross vehicle weight rating of 5,751 – 8,500 pounds
LHT2 = medium trucks and multi-passenger vehicles, gross vehicle weight rating of 10,001 – 14,000 pounds
MDT = heavy trucks, gross vehicle weight rating of 14,001 – 33,000 pounds
HHD = heavy trucks, gross vehicle weight rating of 33,001 – 60,000 pounds
Winter temperature runs assumed 60 degrees Fahrenheit
Summer temperature runs assumed 90 degrees Fahrenheit
Separate runs made for 2011, 2012, and 2013
Source: Tetra Tech analyses

Table 4.2-12 summarizes annual vehicle trips used for the analysis of construction-related vehicle emissions for SF-B under Alternative 1. Annual and maximum day emissions associated with construction-related vehicle trips for SF-B are summarized in Table 4.2-13 and Table 4.2-14, respectively.

Table 4.2-12
Construction-Related Vehicle Trips for Solar Farm Layout B

Year	Vehicle Trip Category	Annual 1-Way Trips	Average Daily 1-Way Trips	Mean 1-Way Trip Distance, miles	Annual VMT	Average Daily VMT
2011	Heavy-Heavy Trucks	10,514	42.1	143	1,504,650	6,019
2011	Shuttles	19,500	78	73	966,094	3,864
2011	Personal Vehicle Commute	23,000	92	83	1,294,966	5,180
2011	To/From Assembly Point	254,500	1,018	16.1	2,205,777	8,823
2012	Heavy-Heavy Trucks	13,433	53.1	158	2,126,040	8,403
2012	Shuttles	15,180	60	73	991,274	3,918
2012	Personal Vehicle Commute	21,252	84	83	1,569,198	6,202

Table 4.2-12 (continued)
Construction-Related Vehicle Trips for Solar Farm Layout B

Year	Vehicle Trip Category	Annual 1-Way Trips	Average Daily 1-Way Trips	Mean 1-Way Trip Distance, miles	Annual VMT	Average Daily VMT
2012	To/From Assembly Point	217,074	858	16.1	2,498,643	9,876
2013	Heavy-Heavy Trucks	63	1.9	75	4,725	139
2013	Shuttles	340	10	73	24,888	732
2013	Personal Vehicle Commute	476	14	83	39,508	1,162
2013	To/From Assembly Point	4,420	130	16.1	56,930	1,674

Vehicle travel calculations were performed by construction phase within each year. Different construction phases would have different durations. The overall total number of work days per year was not used in the calculations.
Source: Tetra Tech analyses

Table 4.2-13
Annual Emissions from Construction-Related Vehicle Traffic, Solar Farm Layout B

Traffic Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Emissions							
Construction Trucks	1.10	19.57	4.58	0.03	2.16	1.00	0.93
Shuttle Buses	0.15	0.50	1.50	0.01	0.82	0.15	0.03
Personal Vehicle Commute	0.29	0.47	4.54	0.01	1.11	0.21	0.05
To/From Shuttle Assembly Areas	0.50	0.80	7.74	0.01	1.89	0.36	0.09
2011 Total	**2.04**	**21.34**	**18.36**	**0.05**	**5.98**	**1.72**	**1.10**
2012 Emissions							
Construction Trucks	1.39	24.28	6.04	0.04	2.94	1.31	1.20
Shuttle Buses	0.14	0.49	1.37	0.01	0.84	0.15	0.03
Personal Vehicle Commute	0.34	0.53	5.24	0.01	1.34	0.25	0.06
To/From Shuttle Assembly Areas	0.54	0.84	8.34	0.01	2.14	0.40	0.10
2012 Total	**2.42**	**26.13**	**20.99**	**0.06**	**7.26**	**2.12**	**1.40**
2013 Emissions							
Construction Trucks	0.00	0.05	0.01	0.00	0.01	0.00	0.00
Shuttle Buses	0.00	0.01	0.03	0.00	0.02	0.00	0.00
Personal Vehicle Commute	0.01	0.01	0.13	0.00	0.03	0.01	0.00
To/From Shuttle Assembly Areas	0.01	0.02	0.18	0.00	0.05	0.01	0.00
2013 Total	**0.03**	**0.09**	**0.35**	**0.00**	**0.11**	**0.02**	**0.01**

* Annual Emissions, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-14
Maximum Day Emissions from Construction-Related Vehicle Traffic, Solar Farm Layout B

Traffic Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Emissions							
Construction Trucks	14.99	267.69	62.71	0.36	29.58	13.72	12.76
Shuttle Buses	1.76	5.92	17.70	0.06	9.68	1.72	0.35
Personal Vehicle Commute	3.45	5.53	53.58	0.07	13.09	2.47	0.62
To/From Shuttle Assembly Areas	5.93	9.50	92.01	0.13	22.47	4.25	1.06
2011 Total	**26.13**	**288.65**	**226.00**	**0.63**	**74.82**	**22.16**	**14.79**
2012 Emissions							
Construction Trucks	11.22	195.50	48.67	0.30	23.66	10.55	9.67
Shuttle Buses	1.25	4.31	12.13	0.05	7.45	1.32	0.27
Personal Vehicle Commute	3.04	4.70	46.55	0.07	11.95	2.26	0.56
To/From Shuttle Assembly Areas	4.82	7.46	73.78	0.11	18.94	3.58	0.89
2012 Total	**20.33**	**211.97**	**181.13**	**0.53**	**61.99**	**17.71**	**11.40**
2013 Emissions							
Construction Trucks	0.16	2.76	0.73	0.00	0.37	0.16	0.14
Shuttle Buses	0.19	0.66	1.80	0.01	1.24	0.22	0.05
Personal Vehicle Commute	0.49	0.73	7.38	0.01	1.99	0.38	0.09
To/From Shuttle Assembly Areas	0.70	1.05	10.64	0.02	2.87	0.54	0.14
2013 Total	**1.55**	**5.20**	**20.55**	**0.04**	**6.48**	**1.30**	**0.42**

* Maximum Day Emissions, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases overlap at some point during a construction year due to different activities occurring on multiple subareas.
Traffic-related emissions would occur in three air basins, each of which should be evaluated separately in terms of significance thresholds. Evaluation of the SCAQMD regional significance thresholds is based on an approximate distribution of the total traffic-related emissions among these air basins.
Source: Tetra Tech analyses

Construction-related traffic would be distributed among the Mojave Desert, Salton Sea, and South Coast air basins. Almost half of the heavy truck traffic emissions would occur in the Mojave Desert Air Basin, since many material deliveries would originate in states east of California. The remaining heavy truck traffic would be split between the Salton Sea and South Coast air basins. Construction worker commute emissions (shuttles, personal vehicle commutes, and traffic to/from shuttle assembly areas) would be split primarily between the Mojave Desert and Salton Sea air basins, with a relatively smaller component in the South Coast Air Basin.

Somewhat more than half of the emissions from construction-related traffic would likely occur in the Mojave Desert Air Basin. Approximately 50 percent of the construction-related traffic emissions in the Mojave Desert Air Basin would occur within the SCAQMD jurisdiction portion, with the remainder in the MDAQMD jurisdiction portion (refer to Figures 3.2-1 and 3.2-2 in the Air Resources section of Chapter 3 for AQMD and air basin boundaries). At least two-thirds of the remaining emissions would probably occur in the Salton Sea Air Basin, with the remainder occurring in the South Coast Air Basin.

Hazardous Air Pollutant Emissions. The primary hazardous air pollutant emission associated with the Solar Farm under Alternative 1 would be diesel particulate matter emissions from construction equipment. Those emissions have been quantified in the construction emissions tables presented above. Small quantities of other hazardous air pollutants would be associated with gasoline-fueled vehicles also operating on-site during Solar Farm construction. The location of hazardous pollutant emissions from construction equipment operation would vary across the Solar Farm site over the construction period, and thus would not be in a fixed location for long periods of time. There would be few sources of hazardous air pollutant emissions other than limited on-site vehicle traffic at the Solar Farm site during facility operation. As noted previously, there are only a few rural residences within one mile of the site, and only one rural residence within ¼-mile of boundary of the proposed Solar Farm.

Odors. Vehicle emissions and fugitive dust represent the primary air pollutants associated with construction activities at the Solar Farm site. These emission sources are not considered significant odor sources.

Changes in Night Sky Visibility due to Project-Related Fugitive Dust. Fugitive dust emissions during construction of the Solar Farm would occur primarily during daytime hours. Sunlight would implement a dust control plan including the use of dust suppressants during facility construction. Airborne dust generated from the site would be widely dispersed and greatly reduced in concentration by nighttime hours. Construction activity would be phased across the Solar Farm site over a 26-month period, limiting the amount of disturbed area that could produce fugitive dust from wind erosion at night. Development of the Solar Farm site would result in only a small increase in wind erosion potential compared to natural conditions (see the wind erosion discussion under Operation and Maintenance).

Gen-Tie Line A-1

Criteria Pollutant Emissions from On-Site Construction Activity. On-site construction activity impacts for GT-A-1 have been evaluated using a detailed spreadsheet model, as discussed previously for Solar Farm Layout B. Construction of the Gen-Tie Line would occur over an 8-month period beginning in January 2011, but the Gen-Tie Line would not be energized until late 2012 or later, depending on completion of the Red Bluff Substation. Final cleanup of the construction corridor would occur after the Gen-Tie Line is energized. The overall construction process was analyzed in terms of the following six construction phases:

- Site preparation;
- Tower foundations;
- Tower assembly and erection;
- Power line stringing;
- Testing; and
- Site cleanup.

GT-A-1 would be about 12.2 miles long with 73 towers. Approximately 77 acres of the 233-acre transmission line corridor would be disturbed by construction activity. Construction activity would generally occur over a standard five-day workweek with activity limited to daytime hours.

Construction activity would progress in a linear fashion along the transmission corridor. In general, only a few acres would be actively disturbed at any one time during construction, with about five acres per day being disturbed during site preparation. The site preparation and tower foundation construction phases would overlap, but all other construction phases would occur sequentially. Normal dust control practices would be followed during construction. As indicated in Figure 3.10-1 in the Noise section of Chapter 3), there are some scattered rural residences and the Lake Tamarisk development near the portion of the transmission line corridor that follows Kaiser Road. Other portions of the transmission line corridor are not near existing residences.

Emission estimates for on-site construction activity are summarized in a series of tables below. Table 4.2-15 and Table 4.2-16 summarize annual emissions in tons per year for 2011 and 2012, respectively. Table 4.2-17 and Table 4.2-18 summarize average daily emissions in pounds per day for 2011 and 2012, respectively. Additional details concerning the construction emissions analyses are provided in Appendix D-2.

Table 4.2-15
Summary of 2011 Annual On-Site Construction Emissions for Gen-Tie Line A-1

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Site Preparation	0.04	0.32	0.21	0.02	0.08	0.04	0.03
Tower Foundations	0.11	0.55	1.07	0.02	0.07	0.06	0.07
Tower Assembly and Erection	0.07	0.54	0.43	0.03	0.11	0.06	0.05
Power Line Stringing	0.50	0.64	7.16	0.05	0.08	0.06	0.05
Testing	0.08	0.03	1.25	0.00	0.01	0.00	0.00
2011 Totals	**0.79**	**2.08**	**10.13**	**0.12**	**0.35**	**0.22**	**0.20**

* Annual Emissions For 2011, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-16
Summary of 2012 Annual On-Site Construction Emissions for Gen-Tie Line A-1

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Site Cleanup	0.002	0.016	0.012	0.001	0.007	0.002	0.001
2012 Totals	0.002	0.016	0.012	0.001	0.007	0.002	0.001

* Annual Emissions For 2012, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-17
Summary of 2011 Daily On-Site Construction Emissions for Gen-Tie Line A-1

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Site Preparation	4.92	42.41	27.51	2.68	11.24	5.19	4.08
Tower Foundations	4.68	24.46	47.44	1.11	2.99	2.71	2.91
Tower Assembly and Erection	2.07	16.61	13.38	0.89	3.29	1.83	1.63
Power Line Stringing	22.19	28.55	318.36	2.08	3.72	2.56	2.36
Testing	7.67	2.68	119.40	0.30	1.27	0.30	0.00
2011 Maximum Day Totals	**22.19**	**66.86**	**318.36**	**3.79**	**14.23**	**7.89**	**6.99**

* Average Daily Emissions For 2011, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that the site preparation and tower foundation phases would overlap, but that all other phases would follow sequentially with no overlaps.
Source: Tetra Tech analyses

Table 4.2-18
Summary of 2012 Daily On-Site Construction Emissions for Gen-Tie Line A-1

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Site Cleanup	0.19	1.49	1.18	0.06	0.71	0.22	0.11
2012 Maximum Day Totals	**0.19**	**1.49**	**1.18**	**0.06**	**0.71**	**0.22**	**0.11**

* Average Daily Emissions For 2012, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that the site preparation and tower foundation phases would overlap, but that all other phases would follow sequentially with no overlaps.
Source: Tetra Tech analyses

Criteria Pollutant Emissions from Construction-Related Vehicle Traffic for GT-A-1. Emissions from construction-related traffic for GT-A-1 analyzed using the same procedures as those discussed previously for construction-related traffic from Solar Farm Layout B. Table 4.2-19 summarizes annual vehicle trips used for the analysis of construction-related vehicle emissions for GT-A-1 under Alternative 1.

Table 4.2-19
Construction-Related Vehicle Trips for Gen-Tie Line A-1

Year	Vehicle Trip Category	Annual 1-Way Trips	Average Daily 1-Way Trips	Mean 1-Way Trip Distance, miles	Annual VMT	Average Daily VMT
2011	Heavy-Heavy Trucks	1,354	7.7	75	101,550	577
2011	Personal Vehicle Commute	16,928	184	83	2,278,184	12,944
2012	Heavy-Heavy Trucks	4	0.2	75	300	14
2012	Personal Vehicle Commute	98	14	83	24,402	1,162

Vehicle travel calculations were performed by construction phase within each year. Different construction phases would have different durations. The overall total number of work days per year was not used in the calculations.
Source: Tetra Tech analyses

Annual and maximum day emissions associated with construction-related vehicle trips for GT-A-1 are summarized in Table 4.2-20 and Table 4.2-21, respectively.

Table 4.2-20
Annual Emissions from Construction-Related Vehicle Traffic, Gen-Tie Line A-1

Traffic Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Emissions							
Construction Trucks	0.07	1.32	0.31	0.00	0.15	0.07	0.06
Personal Vehicle Commute	0.52	0.83	7.99	0.01	1.95	0.37	0.09
2011 Total	**0.59**	**2.15**	**8.30**	**0.01**	**2.10**	**0.44**	**0.15**
2012 Emissions							
Construction Trucks	0.000	0.002	0.000	0.000	0.000	0.000	0.000
Personal Vehicle Commute	0.005	0.008	0.081	0.000	0.021	0.004	0.001
2012 Total	**0.005**	**0.010**	**0.082**	**0.000**	**0.021**	**0.004**	**0.001**

* Annual Emissions, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-21
Maximum Day Emissions from Construction-Related Vehicle Traffic, Gen-Tie Line A-1

Traffic Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Emissions							
Construction Trucks	0.95	17.04	3.99	0.02	1.88	0.87	0.81
Personal Vehicle Commute	6.61	10.59	102.50	0.14	25.04	4.73	1.18
2011 Total	**7.56**	**27.62**	**106.50**	**0.16**	**26.92**	**5.61**	**1.99**
2012 Emissions							
Construction Trucks	0.00	0.20	0.04	0.00	0.03	0.01	0.01
Personal Vehicle Commute	0.51	0.78	7.76	0.01	1.99	0.38	0.09
2012 Total	**0.51**	**0.99**	**7.80**	**0.01**	**2.02**	**0.38**	**0.10**

* Maximum Day Emissions, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases overlap at some point during a construction year due to different activities occurring on multiple subareas.
Source: Tetra Tech analyses

Hazardous Air Pollutant Emissions. The primary hazardous air pollutant emission associated with construction and operation of GT-A-1 would be diesel particulate matter emissions from construction equipment. Those emissions have been quantified in the construction emissions tables presented above. Small quantities of other hazardous air pollutants would be associated with gasoline-fueled vehicles also used during construction. There would be few operational sources of hazardous air pollutant emissions other than limited and infrequent on-site vehicle traffic for periodic line inspection and necessary maintenance activities. The quantities of hazardous pollutant emissions associated with transmission line construction and operation are expected to be too small to pose a health risk to the nearest residences.

Changes in Night Sky Visibility due to Project-Related Fugitive Dust. Fugitive dust emissions during construction of GT-A-1 would occur primarily during daytime hours. Airborne dust generated from the site would be widely dispersed and greatly reduced in concentration by nighttime hours. The GT-A-1 corridor would not be a noticeable source of dust from wind erosion. Consequently, construction of GT-A-1 would not produce significant dust-related changes in night sky visibility.

Red Bluff Substation A

Criteria Pollutant Emissions from On-Site Construction Activity. On-site construction activity impacts have been evaluated using a detailed spreadsheet model as discussed previously for Solar Farm Layout B. Construction of the Substation would occur over a 26-month period beginning in April 2011. Construction activity would include construction of the separate telecommunications site. Because the telecommunication site is so small, construction activity at that site has been included in the analysis of the main Substation site. The overall construction process was analyzed in terms of the following 11 construction phases:

- Access road construction

- Site fencing
- Site clearing
- Site grading and compaction
- Trenching and foundations
- Equipment pads
- Equipment installation
- Power line connections
- Testing
- Driveways, other paving, and security wall
- Site cleanup

The construction emissions analyses for Red Bluff Substation A assumed that construction activity would disturb approximately 174 acres, with 145 acres being permanently affected (substation site, access roads, drainage diversions, power line connection corridors, telecommunications site, etc.). Recent changes to the substation plans indicate that the total disturbed area would be about 165.4 acres, with 127.6 acres permanently affected. Consequently, the construction emission estimates provided below represent a conservative analysis. The various construction phases would occur in sequence, with no overlap among phases. As indicated in Figure 3.10-1 in the Noise section of Chapter 3), there are no residences or other sensitive land uses in the immediate vicinity of the substation site, although there are some rural residences near the telecommunications site.

Emission estimates for on-site construction activity are summarized in a series of tables below. Table 4.2-22 through Table 4.2-24 summarize annual emissions in tons per year for 2011, 2012, and 2013, respectively. Table 4.2-25 through Table 4.2-27 summarize average daily emissions in pounds per day for 2011, 2012, and 2013, respectively. Additional details concerning the construction emissions analyses are provided in Appendix D-2.

Table 4.2-22
Summary of 2011 Annual On-Site Construction Emissions for Red Bluff Substation A

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Access Road Construction	0.04	0.36	0.24	0.02	0.04	0.03	0.04
Site Fencing	0.02	0.08	0.22	0.00	0.01	0.01	0.01
Site Clearing	0.07	0.52	0.36	0.03	0.20	0.08	0.05
Grading and Compacting	0.13	1.15	0.85	0.08	0.28	0.15	0.13
2011 Totals	**0.26**	**2.11**	**1.67**	**0.14**	**0.53**	**0.26**	**0.22**

* Annual Emissions For 2011, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-23
Summary of 2012 Annual On-Site Construction Emissions for Red Bluff Substation A

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Trenching and Foundations	0.04	0.17	0.53	0.01	0.09	0.03	0.01
Equipment Pads	0.10	0.53	1.26	0.03	0.27	0.09	0.05
Equipment Installation	0.31	0.68	4.15	0.04	0.76	0.20	0.06
Power Line Connections	0.20	0.20	2.56	0.01	0.93	0.20	0.01
Testing	0.06	0.02	0.89	0.00	0.03	0.01	0.00
2012 Totals	**0.72**	**1.60**	**9.39**	**0.10**	**2.07**	**0.52**	**0.13**

* Annual Emissions For 2012, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-24
Summary of 2013 Annual On-Site Construction Emissions for Red Bluff Substation A

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Testing	0.06	0.02	0.77	0.00	0.03	0.01	0.00
Driveways, Other Paving, Security Wall	0.08	0.47	0.46	0.02	0.11	0.05	0.04
Site Cleanup	0.00	0.01	0.01	0.00	0.00	0.00	0.00
2013 Totals	**0.14**	**0.50**	**1.24**	**0.02**	**0.14**	**0.06**	**0.04**

* Annual Emissions For 2013, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-25
Summary of 2011 Daily On-Site Construction Emissions for Red Bluff Substation A

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Access Road Construction	2.17	17.80	11.93	1.19	1.89	1.68	1.81
Site Fencing	1.72	6.55	17.65	0.27	0.61	0.44	0.43
Site Clearing	2.29	17.31	11.99	1.00	6.94	2.56	1.62
Grading and Compacting	4.18	38.45	28.47	2.62	9.51	4.92	4.19
2011 Maximum Day Totals	**4.18**	**38.45**	**28.47**	**2.62**	**9.51**	**4.92**	**4.19**

* Average Daily Emissions For 2011, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases would follow sequentially with no overlaps.
Source: Tetra Tech analyses

Table 4.2-26
Summary of 2012 Daily On-Site Construction Emissions for Red Bluff Substation A

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Trenching and Foundations	4.43	17.34	52.80	0.78	9.35	2.85	1.34
Equipment Pads	6.77	35.13	84.24	2.06	19.40	6.36	3.40
Equipment Installation	6.92	15.09	92.15	0.92	17.31	4.44	1.30
Power Line Connections	6.69	6.66	85.40	0.45	31.98	6.74	0.40
Testing	2.69	0.91	39.40	0.11	1.43	0.30	0.00
2012 Maximum Day Totals	**6.92**	**35.13**	**92.15**	**2.06**	**31.98**	**6.74**	**3.40**

* Average Daily Emissions For 2012, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases would follow sequentially with no overlaps.
Source: Tetra Tech analyses

Table 4.2-27
Summary of 2013 Daily On-Site Construction Emissions for Red Bluff Substation A

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Testing	2.51	0.82	34.01	0.11	1.43	0.30	0.00
Driveways, Other Paving, Security Wall	3.99	23.47	23.19	1.01	5.64	2.54	1.96
Site Cleanup	0.19	1.52	1.36	0.05	0.58	0.20	0.12
2012 Maximum Day Totals	**3.99**	**23.47**	**34.01**	**1.01**	**5.64**	**2.54**	**2.23**

* Average Daily Emissions For 2013, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases would follow sequentially with no overlaps.
Source: Tetra Tech analyses

The analysis presented above assumes that access to Substation A from I-10 would occur from the east via the I-10/Chuckwalla Valley Road interchange, with an access road constructed to connect the Substation site to Corn Springs Road. An alternative access route would be from the west via the I-10/SR 177 interchange, with an access road constructed to connect the Substation site to Aztec Road. In either case, access road and related drainage improvements would disturb approximately 19 acres. Consequently, the access road construction impacts presented above in Tables 4.2-22 and 4.2-25 would be applicable to the alternative access road and no separate analysis of the western access route is required.

Criteria Pollutant Emissions from Construction-Related Vehicle Traffic for Red Bluff Substation A. Emissions from construction-related traffic for Red Bluff Substation A were evaluated using the same procedures as discussed previously for Solar Farm Layout B. Table 4.2-28 summarizes annual vehicle trips used for the analysis of construction-related vehicle emissions for Red Bluff Substation A under Alternative 1.

Table 4.2-28
Construction-Related Vehicle Trips for Red Bluff Substation A

Year	Vehicle Trip Category	Annual 1-Way Trips	Average Daily 1-Way Trips	Mean 1-Way Trip Distance, miles	Annual VMT	Average Daily VMT
2011	Heavy-Heavy Trucks	145	0.8	75	10,875	59
2011	Personal Vehicle Commute	1,458	54.0	83	829,170	4,482
2012	Heavy-Heavy Trucks	5,507	22.5	75	413,025	1,686
2012	Personal Vehicle Commute	3.362	82.0	83	1,309,740	5,346
2013	Heavy-Heavy Trucks	3,486	34.9	75	261,450	2,615
2013	Personal Vehicle Commute	578	34.0	83	282,200	2,822

Vehicle travel calculations were performed by construction phase within each year. Different construction phases would have different durations. The overall total number of work days per year was not used in the calculations.
Source: Tetra Tech analyses

Annual and maximum day emissions associated with construction-related vehicle trips for Red Bluff Substation A are summarized in Table 4.2-29 and Table 4.2-30, respectively.

Table 4.2-29
Annual Emissions from Construction-Related Vehicle Traffic, Substation A

Traffic Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Emissions							
Construction Trucks	0.01	0.14	0.03	0.00	0.02	0.01	0.01
Personal Vehicle Commute	0.19	0.30	2.91	0.00	0.71	0.13	0.03
2011 Total	**0.20**	**0.44**	**2.94**	**0.00**	**0.73**	**0.14**	**0.04**
2012 Emissions							
Construction Trucks	0.27	4.72	1.17	0.01	0.57	0.25	0.23
Personal Vehicle Commute	0.29	0.44	4.37	0.01	1.12	0.21	0.05
2012 Total	**0.56**	**5.16**	**5.55**	**0.01**	**1.69**	**0.47**	**0.29**
2013 Emissions							
Construction Trucks	0.15	2.59	0.69	0.00	0.35	0.15	0.13
Personal Vehicle Commute	0.06	0.09	0.90	0.00	0.24	0.05	0.01
2013 Total	**0.21**	**2.68**	**1.59**	**0.01**	**0.59**	**0.19**	**0.15**

* Annual Emissions, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-30
Maximum Day Emissions from Construction-Related Vehicle Traffic, Red Bluff Substation A

Traffic Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Emissions							
Construction Trucks	0.09	1.53	0.36	0.00	0.17	0.08	0.07
Personal Vehicle Commute	2.03	3.25	31.45	0.04	7.68	1.45	0.36
2011 Total	**2.11**	**4.78**	**31.81**	**0.05**	**7.85**	**1.53**	**0.43**
2012 Emissions							
Construction Trucks	2.71	47.16	11.74	0.07	5.71	2.54	2.33
Personal Vehicle Commute	2.82	4.37	43.22	0.06	11.10	2.10	0.52
2012 Total	**5.53**	**51.53**	**54.96**	**0.14**	**16.80**	**4.64**	**2.86**
2013 Emissions							
Construction Trucks	3.05	51.86	13.79	0.09	6.95	2.97	2.68
Personal Vehicle Commute	1.19	1.77	17.93	0.03	4.84	0.92	0.23
2013 Total	**4.24**	**53.63**	**31.71**	**0.12**	**11.79**	**3.88**	**2.91**

* Maximum Day Emissions, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases overlap at some point during a construction year due to different activities occurring on multiple subareas.
Source: Tetra Tech analyses

Hazardous Air Pollutant Emissions. The primary hazardous air pollutant emission associated with construction and operation of Red Bluff Substation A would be diesel particulate matter emissions from construction equipment. Those emissions have been quantified in the construction emissions tables presented previously. Small quantities of other hazardous air pollutants would be associated with gasoline-fueled vehicles also used during construction. There would be few operational sources of hazardous air pollutant emissions other than limited and infrequent on-site vehicle traffic for periodic facility inspection and necessary maintenance activities. As noted previously, there are no sensitive receptors in the immediate vicinity of the Substation site. The quantities of hazardous pollutant emissions associated with substation construction and operation are expected to be too small to pose a health risk to the nearest residences.

Changes in Night Sky Visibility due to Project-Related Fugitive Dust. Fugitive dust emissions during construction of Red Bluff Substation A would occur primarily during daytime hours. Airborne dust generated from the site would be widely dispersed and greatly reduced in concentration by nighttime hours. The Substation site would not be a noticeable source of dust from wind erosion. Consequently, the Substation would not produce significant dust-related changes in night sky visibility.

Summary of Construction Impacts for Alternative 1

Construction activities and associated vehicle traffic under Alternative 1 would generate emissions of criteria pollutants and hazardous air pollutants over a period of approximately 26 months.

Construction-related emissions generally would be limited to daytime hours on weekdays, and would have little effect on night sky visibility conditions. No odor problems would be expected as a result of construction-related activity or vehicle traffic.

Operation and Maintenance

Solar Farm Layout B

Criteria Pollutant Emissions from Facility Operations. Alternative 1 would have limited operational emissions at the Solar Farm site. There would be no emissions associated with operation of the Solar Farm equipment. With only 10 to 15 on-site Solar Farm employees and limited requirements for material deliveries, emissions from operational vehicle traffic (employee commutes, delivery vehicles, and on-site vehicle use) would be low (less than six pounds per day for nitrogen oxide emissions and less than four pounds per day of PM_{10} emissions). Emissions associated with vehicle travel to the on-site visitor center also would be limited. Small amounts of volatile organic compounds would be released any time buildings or equipment enclosures need to be repainted. Small amounts of organic compounds and perhaps other pollutants would be released from the use of janitorial materials and other equipment maintenance materials.

Net Change in Wind Erosion from Solar Farm Layout B. Development of the Solar Farm would replace natural vegetation and ground surface conditions with cleared land, solar panel arrays, buildings, equipment pads, gravel roads, and related features. There would be a change in wind erosion conditions associated with these land surface changes. Changes in wind erosion conditions have been evaluated using a spreadsheet model that was developed from analyses used to model wind erosion and dust storm conditions at Mono Lake in the early 1990s. The spreadsheet model generates an equation for a sigmoidal (S-shaped) curve based on a minimum of two data points: a zero value point at the threshold wind speed for initiating wind erosion, and a practical maximum emission rate normally set at a wind speed of 50 mph. The spreadsheet model provides default maximum emission rates based on other types of soil disturbance, all of which have emission rates that vary according to soil clay plus silt content. In the absence of site-specific data, the following types of conditions are used for setting the maximum wind erosion rate:

- Fugitive dust from agricultural tilling;
- Fugitive dust from general construction activity;
- Fugitive dust from vehicle travel on unpaved dirt roads, with an adjustment for silt depletion on heavily used unpaved roads; and
- Fugitive dust from vehicle travel on unpaved dirt roads, assuming no silt content depletion compared to adjacent soils.

The spreadsheet model sets three general categories of default equations:

- Normal wind erosion conditions, using maximum wind erosion rates based on agricultural tilling or construction site fugitive dust, whichever is greater for the soil conditions of interest;
- Unusual wind erosion conditions (high silt content soils with little clay content, oxidized peat soils, diatomaceous earth sediments, etc.), using maximum wind erosion rates based on unpaved dirt roads with silt depletion compared to adjacent soils; and

- Extreme wind erosion conditions (unconsolidated volcanic ash deposits, etc.), using maximum wind erosion rates based on unpaved dirt roads with no silt depletion.

The wind erosion spreadsheet also includes default emission reduction equations that can be used to assess the effects of vegetation cover on wind erosion. The vegetation cover effectiveness equations can be used in assessing wind erosion reduction from other types of ground cover (desert pavement, solar arrays, etc.).

The wind erosion analysis for the Solar Farm site was prepared as a net change analysis comparing the developed Solar Farm site conditions to existing natural conditions. All analyses used the normal wind erosion condition equations and a 7 percent clay plus silt content. Annual emission estimates were developed by estimating the annual wind speed frequency distribution for the project area, and then applying the wind erosion equations to that wind speed frequency distribution to generate an annual barren ground wind erosion emission estimate. The barren ground wind erosion data were then adjusted for natural conditions (ground cover by vegetation, desert pavement, and soil biological crusts) to produce an annual baseline wind erosion estimate. For the Solar Farm layout alternatives, the barren ground wind erosion data were adjusted for ground cover by Solar Farm facilities (converting ground cover by solar arrays, building and equipment pads, gravel roads, etc.. to equivalent vegetation cover values) to produce annual developed site wind erosion estimates. The difference between annual wind erosion estimates for the developed Solar Farm layouts and baseline conditions represents the net change in wind erosion conditions for the site. Appendix D-4 provides additional information regarding the wind erosion analyses.

No site-specific wind speed data was readily available, so data from other locations was used to develop estimates for the project area. Hourly wind speed data was not readily available for the Blythe airfield. The closest location with a reasonable period of readily available hourly wind data was the Barstow-Daggett airfield in San Bernardino County (WebMet 2010). Hourly wind speed data from Barstow-Daggett for January 1980 through December 1990 were used to establish a basic wind speed frequency profile. A comparison of summary wind statistics for the Barstow-Daggett and Blythe airfields showed that wind speeds at Blythe were noticeably lower than concurrent wind speeds at Barstow-Daggett. The mean wind speed at Barstow-Daggett was 11.4 mph for 1996 – 2006, while the mean wind speed at Blythe was 7.9 mph for the same period (Western Regional Climate Center 2007). Consequently, the Barstow-Daggett hourly wind data were adjusted by the ratio of mean wind speeds to approximate a wind speed profile for Blythe. The estimated wind speed profile for Blythe was assumed to be representative of wind speeds in the Project area. This analysis procedure produced a mean wind speed estimate at Blythe of 8.1 mph for the 1980 through 1990 data, with a maximum hourly average wind speed of 36 mph.

Three types of natural ground cover were considered in developing the baseline wind erosion estimate: desert pavement cover, soil biological crusts, and vegetation cover. Desert pavement was assumed to be present on 35 percent of the Solar Farm site (Earth Systems Southwest 2010a). Desert pavement cover was assumed to provide a wind erosion emission reduction equivalent to 50 percent vegetation cover. The Solar Farm site does not have extensive soil biological crusts. A nominal 5 percent of the Solar Farm site was assumed to have soil biological crusts providing a wind erosion emission reduction equivalent to 35 percent vegetation cover. The remaining 60 percent of the Solar Farm site was assumed to have a vegetation cover of about 15 percent (Hughes 2010). The combined "vegetation cover equivalence" for baseline conditions was 28.3 percent. The wind erosion reduction provided by this equivalent vegetation cover varies with wind speed, ranging from a 93 percent reduction at a wind speed of 20 mph to a 77.4 percent reduction at a wind speed of 40 mph.

Under Solar Farm Layout B, the developed Solar Farm would have 0.7 percent of the area covered by gravel roads with a dust suppressant treatment; 0.3 percent of the area covered by building, equipment pads, power poles, and similar structures; and 33 percent of the area covered by solar panels. The remaining 66 percent of the Solar Farm site would be open ground that has been treated with a biodegradable dust suppressant. Vegetation would be allowed to re-establish on this open ground, but the rate of vegetation re-establishment is expected to be slow. For analysis purposes, the gravel road areas were assumed to have a wind erosion reduction equivalent to 23 percent vegetation cover. Buildings, equipment pads, and similar facilities would eliminate all wind erosion from the underlying soils (equivalent to 100 percent vegetation cover). The linear solar panel arrays differ from other surface cover features in that their effect on wind erosion varies with wind direction. The panel arrays would run in an east-west direction, with the sloped panels facing south. The sloped panels would be most effective in reducing wind erosion for winds blowing from the south. The panels would be slightly less effective in reducing wind erosion for winds blowing from the north, since the sloped panels would tend to deflect some of the wind toward the ground. The panel arrays would be least effective in reducing wind erosion for winds blowing from either the west or the east, although the ground under the panels would have been compacted and would have received a biodegradable dust suppressant treatment during the construction period. For analysis purposes, the solar panel arrays were assumed to have a vegetation cover equivalence equal to the physical cover factor for winds from the south (33 percent cover), a vegetation cover equivalence five percentage points less than the physical cover factor for winds from the north (28 percent cover), and a nominal vegetation cover equivalence of 8 percent for winds from the west or east.

The hourly wind direction data from the Barstow-Daggett airfield (predominately east and west winds) is clearly not representative of conditions in the Project Study Area. While numerical tabulations of wind direction were not readily available for the Blythe airfield, 96 seasonal time-of-day wind roses were available (Stewart 1999). A qualitative evaluation of those wind rose diagrams was used to estimate wind direction weighting factors for the project area: 45 percent from the south, 35 percent from the north, 5 percent from the east, and 15 percent from the west. The combined "vegetation cover equivalence" for Solar Farm Layout B conditions was 24.4 percent. The wind erosion reduction provided by this equivalent vegetation cover varies with wind speed, ranging from an 89.7 percent control factor at a wind speed of 20 mph to a 72.4 percent control factor at a wind speed of 40 mph.

Table 4.2-31 summarizes the results of the wind erosion analysis for Solar Farm Layout B.

Table 4.2-31
Summary of Wind Erosion Conditions for Solar Farm Layout B

Parameters	Per-Acre Conditions	Total Site Conditions
Site Acres	NA	4,245
Barren Ground PM10 Emissions, Tons per Year	0.193	818.0
Natural Condition PM10 Emissions, Tons per Year	0.018	78.0
Solar Farm Condition PM10 Emissions, Tons per Year	0.026	111.7
Net Change in PM10 Emissions, Solar Farm versus Natural Conditions, Tons per Year	0.008	33.7

Table 4.2-31 (continued)
Summary of Wind Erosion Conditions for Solar Farm Layout B

Parameters	Per-Acre Conditions	Total Site Conditions
Barren Ground PM10 Emissions, Average Pounds per Day	1.056	4,482.2
Natural Condition PM10 Emissions, Average Pounds per Day	0.101	427.3
Solar Farm Condition PM10 Emissions, Average Pounds per Day	0.144	611.8
Net Change in PM10 Emissions, Solar Farm versus Natural Conditions, Average Pounds per Day	0.043	184.5

Note: The net per acre change in wind erosion conditions (solar farm versus natural conditions) amounts to only 0.69 ounces (19.5 grams) per acre per day, a value that would not be detectable by visual observation and probably would not be detectable by instrumental monitoring.
Source: Tetra Tech analyses

Operation of SF-B under Alternative 1 would result in an indirect air quality impact from altered wind erosion conditions at the Solar Farm site. As noted in Table 4.2-31 above, the change in ground cover conditions is expected to increase the wind erosion susceptibility of the site by a small amount. On a per-acre basis, this change would be quite small, amounting to only 0.144 pounds of PM_{10} per acre per day (less than one ounce per acre per day). Such a small change in wind erosion conditions would not be detectable by visual observation, and probably would not be detectable by instrumental monitoring equipment. But when aggregated over the entire 4,245-acre site, the total net increase in PM_{10} emissions from wind erosion would average approximately 185 pounds per day.

Compliance with Air Quality Plans and Regulatory Requirements. The proposed Project would not conflict with any adopted air quality management plan and is expected to be in compliance with all local, state, and federal regulatory requirements. Most equipment used during construction of the Solar Farm would be mobile equipment exempt from regulation as stationary sources. Other equipment such as portable generators and air compressors, would most likely be registered under the CARB statewide portable equipment registration program, and thus would be exempt from SCAQMD regulation. The power screeners used during construction would either be provided directly by construction contractors or would be rented equipment items. In either case, that equipment would most likely be registered under the CARB statewide portable equipment registration program or would be operating under the owner's existing SCAQMD permits. In addition, construction equipment would be expected to operate in compliance with state regulations governing unnecessary idling of diesel engine equipment (CARB 2008a, 2008d). As noted in the Air Resources section of Chapter 3, the Applicant would comply with various SCAQMD rules and regulations, including Rule 403 (fugitive dust control), Rule 1113 (architectural coatings), Rule 442 (usage of solvents), and Rule 1171 (solvent cleaning operations).

Because eastern Riverside County has no federal nonattainment or maintenance designations, federal agency actions in eastern Riverside County are not required to conduct formal CAA conformity reviews.

Gen-Tie Line A-1

Criteria Pollutant Emissions from Facility Operations. Operational emissions for GT-A-1 would be minimal, resulting from periodic line inspections and any necessary maintenance activity. Assuming two line inspections and one maintenance event per year, operational activities would typically produce maximum daily emissions of less than 2.5 pounds of nitrogen oxide and less than 0.7 pounds of PM_{10}.

Net Change in Wind Erosion from the Project Site. No quantitative analysis of wind erosion conditions has been conducted for GT-A-1, since the area of disturbance is a relatively narrow linear corridor with adjacent undisturbed areas providing at least partial shielding from wind erosion. Vegetation within the disturbance area would be cleared only where necessary for laydown and staging areas, tower assembly areas, and other localized work areas. The size and orientation of cleared and disturbed areas would avoid any large changes in wind erosion conditions along the Gen-Tie Line corridor.

Compliance with Air Quality Plans and Regulatory Requirements. GT-A-1 would not conflict with any adopted air quality management plan and is expected to be in compliance with all local, state, and federal regulatory requirements. Most equipment used during project construction of GT-A-1 would be mobile equipment exempt from regulation as stationary sources. Other equipment such as portable generators and air compressors, would most likely be registered under the CARB statewide portable equipment registration program, and thus would be exempt from SCAQMD regulation. In addition, construction equipment would be expected to operate in compliance with state regulations governing unnecessary idling of diesel engine equipment (CARB 2008a, 2008d). As noted in the Air Resources section of Chapter 3, the Applicant would comply with various SCAQMD rules and regulations, including Rule 403 (fugitive dust control), Rule 1113 (architectural coatings), Rule 442 (usage of solvents), and Rule 1171 (solvent cleaning operations).

Because eastern Riverside County has no federal nonattainment or maintenance designations, federal agency actions in eastern Riverside County are not required to conduct formal CAA conformity reviews.

Emissions from Corona Discharge. Corona discharge is an electrical discharge caused by ionization of air in the electric field surrounding an electrical conductor such as a high voltage transmission line. Electrical transmission lines are designed to minimize corona discharge effects, since corona discharge represents a loss of transmitted energy. Corona discharge occurs along high voltage transmission lines primarily during rainstorm events. Ionization of air during corona discharge events can result in chemical reactions that generate small quantities of ozone and even smaller quantities of nitrogen oxides. The quantities of ozone and nitrogen oxides produced by corona discharge effects are too small to have ambient air quality effects. Corona discharge generally is not an issue with transmission lines rated at 230 kV or less (PG&E 2002).

Odors. Vehicle emissions and fugitive dust represent the primary air pollutants associated with operation and maintenance of GT-A-1. Because these emissions would be minimal, they are not considered adverse odor sources. Corona discharge effects along high voltage transmission lines during rainstorms can generate small quantities of ozone, which has a pungent odor. Corona discharge only occurs during rainstorms, and any resulting ozone odor generally is not noticeable beyond the transmission line right of way. In addition, stratospheric ozone transported to ground level by air turbulence is commonly noticed during thunderstorms. It is difficult to distinguish ozone generated by corona discharge from stratospheric ozone that has been entrained in thunderstorms and carried by vertical turbulence to ground level.

Red Bluff Substation A

Criteria Pollutant Emissions from Facility Operations. Operational emissions for Red Bluff Substation A would be minimal, resulting from periodic facility inspections and necessary maintenance activity. Assuming two line inspections and one maintenance event per year, operational activities would typically produce maximum daily emissions of less than 2.5 pounds of nitrogen oxide and less than 0.7 pounds of PM_{10}.

Net Change in Wind Erosion from the Project Site. No quantitative analysis of wind erosion conditions has been conducted for Red Bluff Substation A, since the substation area would be covered by non-erodible surfaces (concrete pads, asphalt paving, or gravel).

Compliance with Air Quality Plans and Regulatory Requirements. Red Bluff Substation A would not conflict with any adopted air quality management plan and is expected to be in compliance with all local, state, and federal regulatory requirements. Most equipment used during project construction of Red Bluff Substation A would be mobile equipment exempt from regulation as stationary sources. Other equipment such as portable generators and air compressors, would most likely be registered under the CARB statewide portable equipment registration program, and thus would be exempt from SCAQMD regulation. In addition, construction equipment would be expected to operate in compliance with state regulations governing unnecessary idling of diesel engine equipment (CARB 2008a, 2008d). As noted in the Air Quality section of Chapter 3, SCE would need to comply with various SCAQMD rules and regulations, including Rule 403 (fugitive dust control), Rule 1113 (architectural coatings), Rule 442 (usage of solvents), and Rule 1171 (solvent cleaning operations).

Because eastern Riverside County has no federal nonattainment or maintenance designations, federal agency actions in eastern Riverside County are not required to conduct formal CAA conformity reviews.

Emissions from Corona Discharge. Corona discharge is an electrical discharge caused by ionization of air in the electric field surrounding an electrical conductor such as a high voltage transmission line or a substation. Electrical transmission lines and substation equipment are designed to minimize corona discharge effects, since corona discharge represents a loss of transmitted energy. Corona discharge occurs along high voltage transmission lines and at substation equipment primarily during rainstorm events. Ionization of air during corona discharge events can result in chemical reactions that generate small quantities of ozone and even smaller quantities of nitrogen oxides. The quantities of ozone and nitrogen oxides produced by corona discharge effects are too small to have ambient air quality effects (PG&E 2002).

Odors. Vehicle emissions and fugitive dust represent the primary air pollutants associated with operation and maintenance of Red Bluff Substation A. Because these emissions would be minimal, they are not considered adverse odor sources. Corona discharge effects at high voltage substation equipment during rainstorms can generate small quantities of ozone, which has a pungent odor. Corona discharge only occurs during rainstorms, and any resulting ozone odor generally is not noticeable beyond the substation site. In addition, stratospheric ozone transported to ground level by air turbulence is commonly noticed during thunderstorms. It is difficult to distinguish ozone generated by corona discharge from stratospheric ozone that has been entrained in thunderstorms and carried by vertical turbulence to ground level.

Summary of Operation and Maintenance Impacts for Alternative 1

Operation and maintenance activities and associated vehicle traffic under Alternative 1 would generate limited amounts of emissions of criteria pollutants and hazardous air pollutants for the duration of Project operations. Changes in ground cover conditions would result in limited increases in wind erosion potential for the Solar Farm site and Gen-Tie Line corridor, but not at the Red Bluff Substation site. Alternative 1 would not conflict with any air quality management plan, and would be expected to comply with federal, state, and SCAQMD regulatory requirements. Operation and maintenance conditions for Alternative 1 are not expected to create any air quality issues related to corona discharge or odors.

Decommissioning

Solar Farm Layout B

Decommissioning of the Solar Farm 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. Because decommissioning would occur at least 30 years in the future, it is likely that equipment engine technology and fuels would be different from current technology and fuels. Consequently, it is not possible to provide reliable estimates of equipment emissions from decommissioning activities.

Gen-Tie Line A-1

Decommissioning of GT-A-1 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. Most of the material removed during decommissioning would likely be recycled. Equipment used for decommissioning would generally be similar to that used for construction. Because decommissioning would occur at least 30 years in the future, it is likely that equipment engine technology and fuels would be different from current technology and fuels. Consequently, it is not possible to provide reliable estimates of equipment emissions from decommissioning activities.

Red Bluff Substation A

Decommissioning of the Red Bluff Substation would require disassembly of mechanical equipment components, demolition of equipment pads and paving, and removal of perimeter wall. 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. Because decommissioning would occur at least 30 years in the future, it is likely that equipment engine technology and fuels would be different from current technology and fuels. Consequently, it is not possible to provide reliable estimates of equipment emissions from decommissioning activities.

Summary of Decommissioning Impacts for Alternative 1

Air quality impacts of facility decommissioning would be generally similar in nature to those of facility construction, but emission quantities would likely be less than those generated by construction activities. Equipment engine emissions, in particular, might be considerably less than those from construction activity due to future changes in engine and fuel technology. Decommissioning activities would not require the extent of vegetation clearing and site grading associated with facility construction.

Summary of Combined Impacts for Alternative 1

The preceding analyses have identified impacts associated with individual components of Alternative 1 (Solar Farm Layout B, GT-A-1, and Red Bluff Substation A). The following discussion provides a summary of air quality impacts reflecting the combined effects of all components of Alternative 1.

Criteria Pollutant Emissions from Overall Construction Activity. Overall construction activity for Alternative 1 would include on-site construction activities and construction-related vehicle traffic for Solar Farm Layout B, GT-A-1, and Red Bluff Substation A. Annual and maximum day emissions associated with overall construction activity for Alternative 1 are summarized in Table 4.2-32 and Table 4.2-33, respectively.

Table 4.2-32
Annual Emissions from Combined Construction Activity for Alternative 1

Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Construction Activity							
Solar Farm B	9.64	63.14	87.10	2.49	18.42	6.97	4.92
Transmission Line A-1	1.38	4.22	18.43	0.14	2.45	0.66	0.36
Red Bluff Substation A	0.45	2.55	4.62	0.14	1.25	0.40	0.26
2011 Total	**11.48**	**69.92**	**110.15**	**2.76**	**22.12**	**8.03**	**5.53**
2012 Construction Activity							
Solar Farm B	11.45	71.36	99.25	2.53	21.49	7.92	5.46
Transmission Line A-1	0.007	0.026	0.094	0.001	0.028	0.006	0.002
Red Bluff Substation A	1.27	6.76	14.93	0.11	3.77	0.98	0.42
2012 Total	**12.73**	**78.15**	**114.28**	**2.64**	**25.29**	**8.91**	**5.88**
2013 Construction Activity							
Solar Farm B	0.12	0.67	1.03	0.02	0.68	0.17	0.05
Red Bluff Substation A	0.35	3.18	2.83	0.03	0.73	0.25	0.19
2013 Total	**0.47**	**3.85**	**3.86**	**0.05**	**1.41**	**0.42**	**0.24**

* Annual Emissions, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-33
Daily Emissions from Combined Construction Activity for Alternative 1

Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Construction Activity							
Solar Farm B	145.5	934.9	1,296.1	37.1	266.4	102.2	72.2
Transmission Line A-1	29.8	94.5	424.9	4.0	41.2	13.5	9.0
Red Bluff Substation A	6.3	43.2	60.3	2.7	17.4	6.5	4.6
2011 Total	**181.5**	**1,072.6**	**1,781.3**	**43.8**	**324.9**	**122.1**	**85.8**
2012 Construction Activity							
Solar Farm B	119.7	749.1	1,023.9	29.2	224.8	85.3	59.6
Transmission Line A-1	0.7	2.5	9.0	0.1	2.7	0.6	0.2
Red Bluff Substation A	12.4	86.7	147.1	2.2	48.8	11.4	6.3
2012 Total	**132.8**	**838.2**	**1,180.0**	**31.5**	**276.3**	**97.3**	**66.1**
2013 Construction Activity							
Solar Farm B	10.5	60.1	85.6	2.2	66.1	16.4	2.7
Red Bluff Substation A	8.2	77.1	65.7	1.1	17.4	6.4	5.1
2013 Total	**18.7**	**137.2**	**151.3**	**3.3**	**83.6**	**22.9**	**7.8**

* Daily Emissions, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Hazardous Air Pollutant Emissions. The primary hazardous air pollutant emission associated with the different components of Alternative 1 would be diesel particulate matter emissions from construction equipment. Those emissions have been quantified in the construction emissions tables presented above. Small quantities of other hazardous air pollutants would be associated with gasoline-fueled vehicles also operating on-site during Solar Farm construction. The location of hazardous pollutant emissions from construction equipment operation would vary across the facility construction sites over the construction period, and thus would not be in a fixed location for long periods of time. There would be few sources of hazardous air pollutant emissions other than limited on-site vehicle traffic at the Solar Farm site during facility operation. There are only a few rural residences within one mile of the Solar Farm site, and only one rural residence within ¼-mile of boundary of the proposed Solar Farm. There are some scattered residences and the Lake Tamarisk development near those portions of the alignment for GT-A-1 that follow Kaiser Road. The limited duration of construction activity at any one location along the transmission line corridor would minimize health risks from construction equipment engine exhaust. There are no sensitive receptors near Red Bluff Substation A.

Changes in Night Sky Visibility due to Project-Related Fugitive Dust. Fugitive dust emissions during construction of Project facilities would occur primarily during daytime hours. The applicant would implement a dust control plan including the use of dust suppressants during facility construction. Airborne dust generated from construction sites would be widely dispersed and greatly reduced in concentration by nighttime hours. Construction activity would be phased across the Solar Farm site over a 26-month period, limiting the amount of disturbed area that could produce fugitive dust from

wind erosion at night. Development of the Solar Farm site would result in only a small increase in wind erosion potential compared to natural conditions.

Criteria Pollutant Emissions from Facility Operations. Alternative 1 would have limited operational emissions. Most operational emissions would involve vehicle travel by Solar Farm employees or other employees conducting periodic inspections or maintenance activity along the Gen-Tie Line or at the Red Bluff substation. Annual and daily operational emissions for Alternative 1 are summarized in Table 4.2-34 and Table 4.2-35, respectively.

Table 4.2-34
Annual Emissions from Combined Operational Traffic for Alternative 1

Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Solar Farm B	0.15	1.09	2.13	0.01	0.67	0.14	0.05
Transmission Line A-1	0.0001	0.0012	0.0013	0.0000	0.0005	0.0001	0.0000
Red Bluff Substation A	0.0001	0.0012	0.0013	0.0000	0.0005	0.0001	0.0000
Total	**0.15**	**1.09**	**2.14**	**0.01**	**0.67**	**0.14**	**0.05**

* Annual Emissions, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-35
Daily Emissions from Combined Operational Traffic for Alternative 1

Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Solar Farm B	0.80	5.98	11.70	0.03	3.65	0.77	0.27
Transmission Line A-1	0.11	2.28	1.53	0.01	0.63	0.15	0.07
Red Bluff Substation A	0.11	2.28	1.53	0.01	0.63	0.15	0.07
Total	**1.03**	**10.53**	**14.76**	**0.04**	**4.91**	**1.07**	**0.42**

* Daily Emissions, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

As indicated in Table 4.2-34 and Table 4.2-35, traffic associated with facility operations would generate only limited quantities of pollutant emissions. The on-site visitor's center at the Solar Farm is not expected to draw a high volume of visitor traffic. Consequently, emissions associated with vehicle travel to the on-site visitor center also would be limited. Small amounts of volatile organic compounds would be released any time buildings or equipment enclosures need to be repainted. Small amounts of organic compounds and perhaps other pollutants would be released from the use of janitorial materials and other equipment maintenance materials.

Net Change in Wind Erosion from the Project Site. Changes in wind erosion conditions have been evaluated using procedures discussed previously for SF-B. Development of SF-B would replace natural vegetation and ground surface conditions with cleared land, solar panel arrays, buildings, equipment pads, gravel roads, and related features. There would be a change in wind erosion conditions associated with these land surface changes. As discussed previously, construction of GT-A-1 and Red Bluff Substation A would have minimal effects on wind erosion conditions in the project area. Thus, the net change in wind erosion conditions for the combined components of Alternative 1 would be the same as presented previously in Table 4.2-31.

The change in ground cover conditions for Solar Farm Layout B is expected to increase the wind erosion susceptibility of the site by a small amount. On a per-acre basis, this change would be quite small, amounting to only 0.144 pounds of PM_{10} per acre per day (less than one ounce per acre per day). Such a small change in wind erosion conditions would not be detectable by visual observation, and probably would not be detectable by instrumental monitoring equipment. But when aggregated over the entire 4,245-acre site, the total net increase in PM_{10} emissions from wind erosion would average approximately 185 pounds per day.

Compliance with Air Quality Plan and Regulatory Requirements. Alternative 1 would not conflict with any air quality management plan, and is expected to be in compliance with all local, state, and federal regulatory requirements. Most equipment used during Project construction of the various project components would be mobile equipment exempt from regulation as stationary sources. Other equipment such as portable generators and air compressors, would most likely be registered under the CARB statewide portable equipment registration program, and thus would be exempt from SCAQMD regulation. The power screeners used during Solar Farm construction would either be provided directly by construction contractors or would be rented equipment items. In either case, that equipment would most likely be registered under the CARB statewide portable equipment registration program or would be operating under the owner's existing SCAQMD permits. In addition, construction equipment would be expected to operate in compliance with state regulations governing unnecessary idling of diesel engine equipment (CARB 2008a, 2008d). As noted in the Air Quality section of Chapter 3, the applicant and SCE would need to comply with various SCAQMD rules and regulations, including Rule 403 (fugitive dust control), Rule 1113 (architectural coatings), Rule 442 (usage of solvents), and Rule 1171 (solvent cleaning operations).

Because eastern Riverside County has no federal nonattainment or maintenance designations, federal agency actions in eastern Riverside County are not required to conduct formal CAA conformity reviews.

Emissions from Corona Discharge. Electrical transmission lines and substation equipment are designed to minimize corona discharge effects, since corona discharge represents a loss of transmitted energy. Corona discharge occurs along high voltage transmission lines and at substation equipment primarily during rainstorm events. Ionization of air during corona discharge events can result in chemical reactions that generate small quantities of ozone and even smaller quantities of nitrogen oxides. The quantities of ozone and nitrogen oxides produced by corona discharge effects are too small to have ambient air quality effects (PG&E 2002).

Odors. Vehicle emissions and fugitive dust represent the primary air pollutants associated with the combined facilities for Alternative 1. These emission sources are not considered significant odor sources. Corona discharge effects at high voltage substation equipment during rainstorms can generate small quantities of ozone, which has a pungent odor. Corona discharge only occurs during rainstorms, and any resulting ozone odor generally is not noticeable beyond the substation site. In addition, stratospheric ozone transported to ground level by air turbulence is commonly noticed during thunderstorms. It is difficult to distinguish ozone generated by corona discharge from stratospheric ozone that has been entrained in thunderstorms and carried by vertical turbulence to ground level.

Applicant Measures and Mitigation Measures

Applicant Measures. Sunlight has designed the Project to incorporate various measures that would reduce on-site construction-related emissions and emissions from construction-related traffic. Because the Sunlight Applicant measures are considered part of the project description, the emission analyses included in this EIS account for the following applicant measures:

- AM-AIR-1: Sunlight would develop and implement a dust control plan that includes 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. Sunlight has identified two types of dust palliatives that would be used during the construction process: a hygroscopic salt solution that would be used for the on-site construction roads, and an organic polymer mulch that would be used for other portions of the Solar Farm site, especially the areas between rows of solar arrays. Although preparation of a written dust control plan is not a formal requirement of SCAQMD Rule 403, compliance with all of the substantive provisions of Rule 403 (See Tables 3.2-2 and 3.2-3 in Chapter 3) is a legal requirement.
- AM-AIR-2: Construction activity would be phased across the Solar Farm site in a manner that would minimize the area disturbed on any single day.
- AM-AIR3: Cut and fill quantities would be balanced across the Solar Farm site to minimize emissions from grading and to avoid the need to import fill materials or to remove excess spoil.
- AM-AIR-4: Sunlight would use power screeners to obtain sand and gravel requirements on site, rather than delivering construction sand and gravel to the Solar Farm site by truck. Although this decision would increase the amount of on-site equipment emissions generated during construction, it would eliminate up to 3,500 truck loads of sand and gravel that would otherwise be brought to the site.
- AM-AIR-5: Sunlight would arrange a shuttle bus program for construction workers, with assembly points in the Palm Springs and Blythe areas. Sunlight expects this shuttle bus system to be heavily used by construction workers, with an average of 89.5 percent of construction workers accessing the Solar Farm site by shuttle bus.

SCE has identified two applicant measures that would be implemented during construction of the Red Bluff Substation:

- AM-AIR-6: SCE would develop and implement a dust control plan to ensure compliance with SCAQMD Rule 403 during substation construction. Although preparation of a written dust control plan is not a formal requirement of SCAQMD Rule 403, compliance with all of the substantive provisions of Rule 403 (See Tables 3.2-2 and 3.2-3 in Chapter 3) is a legal requirement and is accommodated in the emissions analyses prepared for this EIS.

- AM-AIR-7: SCE would require bidders for the construction contract to submit a transportation plan describing how workers would travel to the project site.

Mitigation Measures. The following mitigation measures would provide additional reductions in emissions from Project construction and operation:

- MM-AIR-1: Sunlight and SCE shall give preference to construction contractors who have newer equipment with lower emission rates or who have retrofitted their equipment with supplemental emission control devices (diesel particulate filters and catalytic controls for nitrogen oxide emissions). This measure might have economic consequences in terms of construction costs.
- MM-AIR-2: Sunlight shall temporarily stockpile chipped or shredded vegetation debris from the Solar Farm site, then spread it on open areas of the site once construction activity has been completed on a subarea. This measure would eliminate a modest number of truck trips otherwise required to remove vegetation debris from the site.
- MM-AIR-3: Sunlight shall provide annual re-application of dust palliatives at the Solar Farm site to unpaved roads and parking areas and to the open areas between the rows of solar arrays. Annual re-application of dust palliatives would reduce fugitive dust from on-site vehicle travel and would reduce the net increase in wind erosion from the Solar Farm site. This measure would increase annual operating costs and require a small number of additional truck trips to the Solar Farm site.

CEQA Significance Determination

Solar Farm Layout B

Criterion AQ-1. Construction, and operation of SF-B would not conflict with air quality management programs under any air quality management plan. Construction and operation of SF-B would further the goals of and would implement programs consistent with federal and state policies that encourage development of renewable energy sources. Decommissioning for SF-B would be expected to comply with all applicable air quality plans and all applicable federal, state, and local air quality regulations at the time that decommissioning occurs. Consequently, SF-B would not have any air quality impacts related to Criterion AQ-1.

Criterion AQ-2. Construction and operation activities for SF-B would be required to comply with all applicable SCAQMD regulations. Decommissioning for SF-B would be expected to comply with all applicable federal, state, and local air quality regulations when decommissioning occurs. Sunlight would develop and implement a dust control plan (AM-AIR-1) to ensure compliance with SCAQMD Rule 403 requirements. Consequently, SF-B would not have any air quality impacts related to Criterion AQ-2.

Criterion AQ-3. Construction, operation, and decommissioning of SF-B would generate various quantities of criteria pollutant emissions. Applicant measures AM-AIR-1, AM-AIR-2, AM-AIR-3, AM-AIR-4, and AM-AIR-5 are part of the basic project description for SF-B and have been incorporated into the emissions analyses presented previously. Maximum annual emissions associated with construction, operation, and decommissioning of SF-B would be less than 100 tons per year for any criteria pollutant. Some further reductions in construction and operational emissions could be achieved by implementing mitigation measures MM-AIR-1, MM-AIR-2, and MM-AIR-3. Construction, operation, and decommissioning of SF-B would have a less than significant air quality impact under Criterion AQ-3 both before and after mitigation because maximum annual emissions would be less than 100 tons per year for each criteria pollutant.

Criterion AQ-4. Daily construction-related emissions for SF-B would exceed SCAQMD regional emissions significance thresholds for reactive organic compounds, nitrogen oxides, carbon monoxide, PM_{10}, and $PM_{2.5}$, but would not exceed the SCAQMD optional local impact significance criteria for nitrogen oxides, carbon monoxide, PM_{10}, or $PM_{2.5}$. Daily operation and maintenance emissions for SF-B would be less than SCAQMD regional and local impact significance thresholds for all pollutants. Decommissioning would occur at least 30 years in the future when equipment engine technologies and fuel technologies might be significantly different from those that exist today. As a result, it is not possible to make reliable projections of emissions associated with decommissioning. It is, however, reasonable to assume that these emissions would be less than the emissions generated by comparable equipment and activities under present conditions and would be less than predicted construction-related emissions. Reactive organic compounds and nitrogen oxides are primarily regional-scale pollutants. Carbon monoxide is a local-scale air pollutant, and not a regional-scale air pollutant. Directly emitted PM_{10} and $PM_{2.5}$ are primarily local-scale pollutants, but contribute as regional-scale pollutants. Applicant measures AM-AIR-1, AM-AIR-2, AM-AIR-3, AM-AIR-4, and AM-AIR-5 have been accommodated in preparing the emission estimates presented previously. Some further reductions in construction and operational emissions could be achieved by implementing mitigation measures MM-AIR-1, MM-AIR-2, and MM-AIR-3, but these measures would not reduce ozone precursor or particulate matter emissions to levels less than the SCAQMD regional emissions significance thresholds. Consequently, construction-related emissions for Solar Farm Layout B would be a significant air quality impact under criteria AQ-4, both before and after mitigation.

Criterion AQ-5. Daily construction-related emissions for SF-B would not exceed the SCAQMD optional local impact significance criteria for nitrogen oxides, carbon monoxide, PM_{10}, or $PM_{2.5}$. Applicant measures AM-AIR-1, AM-AIR-2, AM-AIR-3, AM-AIR-4, and AM-AIR-5 have been accommodated in preparing the emission estimates presented previously. Some further reductions in construction and operational emissions could be achieved by implementing mitigation measures MM-AIR-1, MM-AIR-2, and MM-AIR-3. Daily operation and maintenance emissions for SF-B would be less than SCAQMD local impact significance thresholds for all pollutants. Decommissioning would occur at least 30 years in the future when equipment engine technologies and fuel technologies might be significantly different from those that exist today. As a result, it is not possible to make reliable projections of emissions associated with decommissioning. It is, however, reasonable to assume that these emissions would be less than the emissions generated by comparable equipment and activities under present conditions and would be less than predicted construction-related emissions. Furthermore, the SCAQMD localized impact significance thresholds are based on dispersion modeling analyses related to state and federal ambient air quality standards. Therefore, no localized violations of ambient air quality standards are expected from construction or operation of SF-B. Consequently, SF-B would have a less than significant air quality impact under Criterion AQ-5 both before and after mitigation.

Criterion AQ-6. Construction of SF-B would be a source of diesel particulate emissions during the 26-month construction period. Diesel particulate emissions are a component of PM_{10} and $PM_{2.5}$ emissions and contain carcinogenic compounds. Applicant measures AM-AIR-1, AM-AIR-2, AM-AIR-3, AM-AIR-4, and AM-AIR-5 have been accommodated in preparing the emission estimates presented previously. Some further reductions in diesel particulate matter emissions could be achieved by implementing mitigation measure MM-AIR-1. Construction-related PM_{10} and $PM_{2.5}$ emissions would be less than SCAQMD localized significance thresholds and no violations of ambient air quality standards would be expected (see discussion of Criterion AQ-5). Construction activities would last for 26 months. Cancer risks are typically evaluated over a 70-year lifetime period. No unacceptable cancer risks would be expected at the closest sensitive receptor locations. because no violations of ambient air quality standards for PM_{10} or $PM_{2.5}$ are expected and because the duration of construction would last only 26 months Consequently, construction at SF-B would have a less than significant air quality impact under Criterion AQ-6 both before and after mitigation. Operational emissions of diesel particulate matter for SF-B would too low to pose any significant health risk. Decommissioning would occur at least 30 years in the future when equipment engine technologies and fuel technologies might be significantly different from those that exist today. As a result, it is not possible to make reliable projections of emissions associated with decommissioning activities. However, it is reasonable to expect that emissions of diesel particulate matter would be greatly reduced in the future compared with current conditions. Consequently, construction, operation, and decommissioning of SF-B would have a less than significant air quality impact under Criterion AQ-6 both before and after mitigation.

Criterion AQ-7. Construction, operation, and decommissioning of SF-B would not generate any strongly odorous emissions. Consequently, SF-B would have a less than significant air quality impact under criterion AQ-7.

Gen-Tie Line A-1

Criterion AQ-1. Construction and operation of GT-A-1 would not conflict with air quality management programs under any air quality management plan. Construction and operation of GT-A-1 would further the goals of and would implement programs consistent with federal and state policies that encourage development of renewable energy sources. Decommissioning for GT-A-1 would be expected to comply with all applicable air quality plans and all applicable federal, state, and local air quality regulations when decommissioning occurs. Consequently, GT-A-1 would not have any air quality impacts related to Criterion AQ-1.

Criterion AQ-2. Construction and operation for GT-A-1 would be required to comply with all applicable SCAQMD regulations. Decommissioning for GT-A-1 would be expected to comply with all applicable federal, state, and local air quality regulations when decommissioning occurs. Consequently, GT-A-1 would not have any air quality impacts related to Criterion AQ-2.

Criterion AQ-3. Construction, operation, and decommissioning of GT-A-1 would generate various quantities of criteria pollutant emissions. Maximum annual emissions associated with construction, operation, and decommissioning of GT-A-1 would be less than 100 tons per year for any criteria pollutant. Some further reductions in construction and operational emissions could be achieved by implementing mitigation measure MM-AIR-1. Construction, operation, and decommissioning of GT-A-1 would have a less than significant air quality impact under Criterion AQ-3 both before and after mitigation because maximum annual emissions would be less than 100 tons per year for each criteria pollutant.

Criterion AQ-4. Daily construction-related emissions for GT-A-1 would not exceed any SCAQMD regional or local emissions significance thresholds. Some further reductions in construction emissions could be achieved by implementing mitigation measure MM-AIR-1. Daily operation and maintenance emissions for GT-A-1 also would be less than SCAQMD regional and local impact significance thresholds for all pollutants. Decommissioning would occur at least 30 years in the future when equipment engine technologies and fuel technologies might be significantly different from those that exist today. AS a result, it is not possible to make reliable projections of emissions associated with decommissioning. It is, however, reasonable to assume that these emissions would be less than the emissions generated by comparable equipment and activities under present conditions and would be less than predicted construction-related emissions. Consequently, construction, operation, and decommissioning of GT-A-1 would be a less than significant air quality impact under criteria AQ-4 both before and after mitigation.

Criterion AQ-5. Daily construction-related emissions for GT-A-1 would not exceed any of the SCAQMD optional local impact significance criteria. Some further reductions in construction emissions could be achieved by implementing mitigation measure MM-AIR-1. Daily operation and maintenance emissions for GT-A-1 would be less than SCAQMD local impact significance thresholds for all pollutants. Decommissioning would occur at least 30 years in the future when equipment engine technologies and fuel technologies might be significantly different from those that exist today. As a result, it is not possible to make reliable projections of emissions associated with decommissioning activities. It is, however, reasonable to assume that these emissions would be less than the emissions generated by comparable equipment and activities under present conditions and would be less than predicted construction-related emissions. Furthermore, the SCAQMD localized impact significance thresholds are based on dispersion modeling analyses related to state and federal ambient air quality standards. Therefore, no localized violations of ambient air quality standards are expected from construction or operation of GT-A-1. Consequently, GT-A-1 would have a less than significant air quality impact under Criterion AQ-5 both before and after mitigation.

Criterion AQ-6. Construction of GT-A-1 would be a source of diesel particulate emissions during the 8-month construction period. Diesel particulate emissions are a component of PM_{10} and $PM_{2.5}$ emissions and contain carcinogenic compounds. Some further reductions in diesel particulate matter emissions could be achieved by implementing mitigation measure MM-AIR-1. Construction-related PM_{10} and $PM_{2.5}$ emissions would be less than SCAQMD localized significance thresholds and no violations of ambient air quality standards would be expected (see discussion of Criterion AQ-5). Construction would last for a total of 8-months, but construction activity at any single location would last only a few weeks. Cancer risks are typically evaluated over a 70-year lifetime period. No violations of ambient air quality standards for PM_{10} or $PM_{2.5}$ are expected and because the duration of construction would last only a few weeks at any one location. Therefore, no unacceptable cancer risks would be expected at the closest sensitive receptor locations. Consequently, construction of GT-A-1 would have a less than significant air quality impact under Criterion AQ-6 both before and after mitigation. Operational emissions of diesel particulate matter for GT-A-1 would too low to pose any significant health risk. Decommissioning would occur at least 30 years in the future when equipment engine technologies and fuel technologies might be significantly different from those that exist today. As a result, it is not possible to make reliable projections of emissions associated with decommissioning. However, it is reasonable to expect that emissions of diesel particulate matter would be greatly reduced in the future compared to current conditions. Consequently, construction, operation, and decommissioning of GT-A-1 would have a less than significant air quality impact under Criterion AQ-6 both before and after mitigation.

Criterion AQ-7. Construction, operation, and decommissioning of GT-A-1 would not generate any strongly odorous emissions. Ozone generation from corona discharge along high-voltage transmission lines occurs only during rain storms and is typically not an issue for transmission lines rated at 230 kV or less. Even for higher-voltage transmission lines, ozone generated by corona discharge is rarely detectable beyond the transmission line right-of-way. Consequently, GT-A-1 would have a less than significant air quality impact under criterion AQ-7.

Red Bluff Substation A

Criterion AQ-1. Construction, and operation of Red Bluff Substation A would not conflict with air quality management programs under any air quality management plan. Construction and operation of Red Bluff Substation A would further the goals of and would implement programs consistent with federal and state policies that encourage development of renewable energy sources. Decommissioning for Red Bluff Substation A would be expected to comply with all applicable air quality plans and all applicable federal, state, and local air quality regulations when decommissioning occurs. Consequently, Red Bluff Substation A would not have any air quality impacts related to Criterion AQ-1.

Criterion AQ-2. Construction and operation activities for Red Bluff Substation A would be required to comply with all applicable SCAQMD regulations. Decommissioning for Red Bluff Substation A would be expected to comply with all applicable federal, state, and local air quality regulations when decommissioning occurs. SCE would develop and implement a dust control plan (AM-AIR-6) to ensure compliance with SCAQMD Rule 403 requirements. Consequently, Red Bluff Substation A would not have any air quality impacts related to Criterion AQ-2.

Criterion AQ-3. Construction, operation, and decommissioning of Red Bluff Substation A would generate various quantities of criteria pollutant emissions. Maximum annual emissions associated with construction, operation, and decommissioning of Red Bluff Substation A would be less than 100 tons per year for any criteria pollutant. Some further reductions in construction and operational emissions could be achieved by implementing mitigation measure MM-AIR-1. Because maximum annual emissions would be less than 100 tons per year for each criteria pollutant, construction, operation, and decommissioning of Red Bluff Substation A would have a less than significant air quality impact under Criterion AQ-3 both before and after mitigation.

Criterion AQ-4. Daily construction-related emissions and daily operation and maintenance emissions for Red Bluff Substation A would not exceed any SCAQMD regional or local emissions significance thresholds. Some further reductions in construction emissions could be achieved by implementing mitigation measure MM-AIR-1. Decommissioning would occur at least 30 years in the future when equipment engine technologies and fuel technologies might be significantly different from those that exist today. As a result, it is not possible to make reliable projections of emissions associated with decommissioning. It is, however, reasonable to assume that these emissions would be less than the emissions generated by comparable equipment and activities under present conditions, and would be less than predicted construction-related emissions. Consequently, construction, operation, and decommissioning of Red Bluff Substation A would be a less than significant air quality impact under criteria AQ-4 both before and after mitigation.

Criterion AQ-5. Daily construction-related emissions for Red Bluff Substation A would not exceed any of the SCAQMD optional local impact significance criteria. Some further reductions in construction emissions could be achieved by implementing mitigation measure MM-AIR-1. Daily operation and maintenance emissions for Red Bluff Substation A would be less than SCAQMD local impact significance thresholds for all pollutants. Decommissioning would occur at least 30 years in the future when equipment engine technologies and fuel technologies might be significantly different from those that exist today. As a result, it is not possible to make reliable projections of emissions associated with decommissioning. It is, however, reasonable to assume that these emissions would be less than the emissions generated by comparable equipment and activities under present conditions and would be less than predicted construction-related emissions. Because the SCAQMD localized impact significance thresholds are based on dispersion modeling analyses related to state and federal ambient air quality standards, no localized violations of ambient air quality standards are expected from construction or operation of Red Bluff Substation A. Consequently, Red Bluff Substation A would have a less than significant air quality impact under Criterion AQ-5 both before and after mitigation.

Criterion AQ-6. Construction of Red Bluff Substation A would be a source of diesel particulate emissions during the 26-month construction period. Diesel particulate emissions are a component of PM_{10} and $PM_{2.5}$ emissions and contain carcinogenic compounds. Some further reductions in diesel particulate matter emissions could be achieved by implementing mitigation measure MM-AIR-1. Construction-related PM_{10} and $PM_{2.5}$ emissions would be less than SCAQMD localized significance thresholds and no violations of ambient air quality standards would be expected (see discussion of Criterion AQ-5). Construction would last for a total of 26 months. Cancer risks are typically evaluated over a 70-year lifetime period. No unacceptable cancer risks would be expected because no violations of ambient air quality standards for PM_{10} or $PM_{2.5}$ are expected and because there are no sensitive receptors near Red Bluff Substation A. Consequently, construction of Red Bluff Substation A would have a less than significant air quality impact under Criterion AQ-6 both before and after mitigation. Operational emissions of diesel particulate matter for Red Bluff Substation A would too low to pose any significant health risk. Decommissioning would occur at least 30 years in the future when equipment engine technologies and fuel technologies might be significantly different from those that exist today. As a result, it is not possible to make reliable projections of emissions associated with decommissioning. However, it is reasonable to expect that emissions of diesel particulate matter would be greatly reduced in the future compared with current conditions. Consequently, construction, operation, and decommissioning of Red Bluff Substation A would have a less than significant air quality impact under Criterion AQ-6 both before and after mitigation.

Criterion AQ-7. Construction, operation, and decommissioning of Red Bluff Substation A would not generate any strongly odorous emissions. Ozone generation from corona discharge along high-voltage transmission lines occurs only during rain storms and is typically not an issue for transmission lines rated at 230 kV or less. Even for higher voltage transmission lines, ozone generated by corona discharge is rarely detectable beyond the transmission line right-of-way. Consequently, Red Bluff Substation A would have a less than significant air quality impact under criterion AQ-7.

Unavoidable Adverse Effects

On-site construction activities and construction-related traffic for Solar Farm Layout B would produce ozone precursor emissions (reactive organic compounds and nitrogen oxides) and particulate matter emissions (PM10 and PM2.5) that exceed SCAQMD regional emissions significance thresholds. Mitigation measures MM-AIR-1 and MM-AIR-2 would reduce these emissions somewhat, but would not reduce emissions to a level less than the SCAQMD regional emissions significance thresholds. Consequently, construction-related emissions for Solar Farm Layout B would be an unavoidable adverse air quality impact under Alternative 1.

4.2.4 Alternative 2 – Alternate Action

Construction

Solar Farm Layout B

The impacts resulting from constructing SF-B under Alternative 2 would be the same as those discussed under Alternative 1. Construction-related applicant measures and mitigation measures for SF-B also would be the same under Alternative 2 as those discussed under Alternative 1.

Gen-Tie Line B-2

Criteria Pollutant Emissions from On-Site Construction Activity. On-site construction activity impacts for GT-B-2 have been evaluated using a detailed spreadsheet model as discussed previously for Solar Farm Layout B under Alternative 1. GT-B-2 would be about 10 miles long, with 58 towers. Approximately 62 acres of the 189-acre transmission line corridor would be disturbed by construction. The construction scenario and assumptions are the same as those described for GT-A-1 under Alternative 1.

Emission estimates for on-site construction activity are summarized in a series of tables below. Table 4.2-36 and Table 4.2-37 summarize annual emissions in tons per year for 2011 and 2012, respectively. Table 4.2-38 and Table 4.2-39 summarize average daily emissions in pounds per day for 2011 and 2012, respectively. Additional details concerning the construction emissions analyses are provided in Appendix D-2.

Table 4.2-36
Summary of 2011 Annual On-Site Construction Emissions for Gen-Tie Line B-2

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Site Preparation	0.04	0.32	0.21	0.02	0.07	0.04	0.03
Tower Foundations	0.10	0.54	1.06	0.02	0.07	0.06	0.06
Tower Assembly and Erection	0.07	0.54	0.43	0.03	0.09	0.06	0.05
Power Line Stringing	0.50	0.64	7.16	0.05	0.08	0.06	0.05
Testing	0.08	0.03	1.25	0.00	0.01	0.00	0.00
2011 Totals	**0.79**	**2.06**	**10.11**	**0.12**	**0.32**	**0.21**	**0.20**

* Annual Emissions For 2011, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-37
Summary of 2012 Annual On-Site Construction Emissions for Gen-Tie Line B-2

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Site Cleanup	0.002	0.016	0.012	0.001	0.005	0.002	0.001
2012 Totals	**0.002**	**0.016**	**0.012**	**0.001**	**0.005**	**0.002**	**0.001**

* Annual Emissions For 2012, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-38
Summary of 2011 Daily On-Site Construction Emissions for Gen-Tie Line B-2

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Site Preparation	4.92	42.41	27.51	2.68	9.88	4.91	4.08
Tower Foundations	4.62	23.81	46.96	1.07	2.93	2.65	2.85
Tower Assembly and Erection	2.06	16.54	13.33	0.89	2.96	1.76	1.63
Power Line Stringing	22.19	28.55	318.36	2.08	3.49	2.52	2.36
Testing	7.67	2.68	119.40	0.30	0.87	0.22	0.00
2011 Maximum Day Totals	**22.19**	**66.22**	**318.36**	**3.75**	**12.81**	**7.56**	**6.93**

* Average Daily Emissions For 2011, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that the site preparation and tower foundation phases would overlap, but that all other phases would follow sequentially with no overlaps.
Source: Tetra Tech analyses

Table 4.2-39
Summary of 2012 Daily On-Site Construction Emissions for Gen-Tie Line B-2

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Site Cleanup	0.19	1.49	1.18	0.06	0.51	0.18	0.11
2012 Maximum Day Totals	**0.19**	**1.49**	**1.18**	**0.06**	**0.51**	**0.18**	**0.11**

* Average Daily Emissions For 2012, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that the site preparation and tower foundation phases would overlap, but that all other phases would follow sequentially with no overlaps.
Source: Tetra Tech analyses

Criteria Pollutant Emissions from Construction-Related Vehicle Traffic for GT-B-2. Emissions from construction-related traffic for GT-B-2 were analyzed using the same procedures as those discussed previously for construction-related traffic from Solar Farm Layout B. Table 4.2-40 summarizes annual vehicle trips used for the analysis of construction-related vehicle emissions for GT-B-2 under Alternative 2.

Table 4.2-40
Construction-Related Vehicle Trips for Gen-Tie Line B-2

Year	Vehicle Trip Category	Annual 1-Way Trips	Average Daily 1-Way Trips	Mean 1-Way Trip Distance, miles	Annual VMT	Average Daily VMT
2011	Heavy-Heavy Trucks	1,212	6.9	75	90,900	516
2011	Personal Vehicle Commute	16,928	184.	83	2,278,184	12,944
2012	Heavy-Heavy Trucks	4	0.2	75	300	14
2012	Personal Vehicle Commute	98	14.	83	24,402	1,162

Vehicle travel calculations were performed by construction phase within each year. Different construction phases would have different durations. The overall total number of work days per year was not used in the calculations.
Source: Tetra Tech analyses

Annual and maximum day emissions associated with construction-related vehicle trips for Transmission Line B-2 are summarized in Table 4.2-41 and Table 4.2-42, respectively.

Table 4.2-41
Annual Emissions from Construction-Related Vehicle Traffic, Gen-Tie Line B-2

Traffic Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Emissions							
Construction Trucks	0.07	1.32	0.31	0.00	0.15	0.07	0.06
Personal Vehicle Commute	0.52	0.83	7.99	0.01	1.95	0.37	0.09
2011 Total	**0.59**	**2.15**	**8.30**	**0.01**	**2.10**	**0.44**	**0.15**
2012 Emissions							
Construction Trucks	0.000	0.002	0.000	0.000	0.000	0.000	0.000
Personal Vehicle Commute	0.005	0.008	0.081	0.000	0.021	0.004	0.001
2012 Total	**0.005**	**0.010**	**0.082**	**0.000**	**0.021**	**0.004**	**0.001**

* Annual Emissions, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-42
Maximum Day Emissions from Construction-Related Vehicle Traffic, Gen-Tie Line B-2

Traffic Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Emissions							
Construction Trucks	0.85	15.25	3.57	0.02	1.69	0.78	0.73
Personal Vehicle Commute	6.61	10.59	102.50	0.14	25.04	4.73	1.18
2011 Total	**7.46**	**25.84**	**106.08**	**0.16**	**26.72**	**5.51**	**1.91**
2012 Emissions							
Construction Trucks	0.00	0.20	0.04	0.00	0.03	0.01	0.01
Personal Vehicle Commute	0.51	0.78	7.76	0.01	1.99	0.38	0.09
2012 Total	**0.51**	**0.99**	**7.80**	**0.01**	**2.02**	**0.38**	**0.10**

* Maximum Day Emissions, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases overlap at some point during a construction year due to different activities occurring on multiple subareas.
Source: Tetra Tech analyses

Hazardous Air Pollutant Emissions. The primary hazardous air pollutant emission associated with construction and operation of GT-B-2 would be diesel particulate matter emissions from construction equipment. Those emissions have been quantified in the construction emissions tables presented previously. Small quantities of other hazardous air pollutants would be associated with gasoline-fueled vehicles also used during construction. There would be few operational sources of hazardous air pollutant emissions other than limited and infrequent on-site vehicle traffic for periodic line inspection and necessary maintenance activities. The quantities of hazardous pollutant emissions associated with transmission line construction and operation are expected to be too small to pose a health risk to the nearest residences.

Changes in Night Sky Visibility due to Project-Related Fugitive Dust. Fugitive dust emissions during construction of GT-B-2 would occur primarily during daytime hours. Airborne dust generated from the site would be widely dispersed and greatly reduced in concentration by nighttime hours. As noted previously, the Gen-Tie Line corridor would not be an adverse source of dust from wind erosion. Consequently, construction of GT-B-2 would not produce significant dust-related changes in night sky visibility.

Red Bluff Substation B

Criteria Pollutant Emissions from On-Site Construction Activity. On-site construction activity impacts have been evaluated using a detailed spreadsheet model as discussed previously for Solar Farm Layout B under Alternative 1. Construction of the Gen-Tie Line would occur over a 26-month period beginning in April 2011. Construction activity would include construction of the separate telecommunications site. The construction emissions analyses for Red Bluff Substation B assumed that construction activity would disturb approximately 144 acres, with 114 acres being permanently affected (substation site, access roads, drainage diversions, power line connection corridors, and the telecommunications site). Recent changes to the substation plans indicate that the total disturbed area would be about 118.2 acres, with 89.6 acres permanently affected. Consequently, the construction emission estimates provided below represent a conservative analysis. The construction phases and assumptions for Red Bluff Substation B are the same as those described for Red Bluff Substation A under Alternative 1.

Emission estimates for on-site construction activity are summarized in a series of tables below. Table 4.2-43 through Table 4.2-45 summarize annual emissions in tons per year for 2011, 2012, and 2013, respectively. Table 4.2-46 through Table 4.2-48 summarize average daily emissions in pounds per day for 2011, 2012, and 2013, respectively. Additional details concerning the construction emissions analyses are provided in Appendix D-2.

Table 4.2-43
Summary of 2011 Annual On-Site Construction Emissions for Red Bluff Substation B

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Access Road Construction	0.02	0.13	0.09	0.01	0.02	0.01	0.01
Site Fencing	0.02	0.08	0.22	0.00	0.01	0.01	0.01
Site Clearing	0.07	0.52	0.36	0.03	0.20	0.08	0.05
Grading and Compacting	0.13	1.15	0.85	0.08	0.28	0.15	0.13
2011 Totals	**0.23**	**1.89**	**1.52**	**0.12**	**0.50**	**0.24**	**0.19**

* Annual Emissions For 2011, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-44
Summary of 2012 Annual On-Site Construction Emissions for Red Bluff Substation B

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Trenching and Foundations	0.04	0.17	0.53	0.01	0.09	0.03	0.01
Equipment Pads	0.10	0.53	1.26	0.03	0.27	0.09	0.05
Equipment Installation	0.31	0.68	4.15	0.04	0.76	0.20	0.06
Power Line Connections	0.20	0.20	2.56	0.01	0.93	0.20	0.01
Testing	0.06	0.02	0.89	0.00	0.03	0.01	0.00
2012 Totals	**0.72**	**1.60**	**9.39**	**0.10**	**2.07**	**0.52**	**0.13**

* Annual Emissions For 2012, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-45
Summary of 2013 Annual On-Site Construction Emissions for Red Bluff Substation B

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Testing	0.06	0.02	0.77	0.00	0.03	0.01	0.00
Driveways, Other Paving, Security Wall	0.05	0.32	0.32	0.01	0.06	0.03	0.02
Site Cleanup	0.00	0.01	0.01	0.00	0.00	0.00	0.00
2013 Totals	**0.11**	**0.35**	**1.09**	**0.02**	**0.09**	**0.04**	**0.02**

* Annual Emissions For 2013, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-46
Summary of 2011 Daily On-Site Construction Emissions for Red Bluff Substation B

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Access Road Construction	2.15	17.68	11.84	1.18	2.03	1.70	1.80
Site Fencing	1.72	6.55	17.65	0.27	0.61	0.44	0.43
Site Clearing	2.29	17.31	11.99	1.00	6.94	2.56	1.62
Grading and Compacting	4.18	38.45	28.47	2.62	9.51	4.92	4.19
2011 Maximum Day Totals	**4.18**	**38.45**	**28.47**	**2.62**	**9.51**	**4.92**	**4.19**

* Average Daily Emissions For 2011, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases would follow sequentially with no overlaps.
Source: Tetra Tech analyses

Table 4.2-47
Summary of 2012 Daily On-Site Construction Emissions for Red Bluff Substation B

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Trenching and Foundations	4.43	17.34	52.80	0.78	9.35	2.85	1.34
Equipment Pads	6.77	35.13	84.24	2.06	19.40	6.36	3.40
Equipment Installation	6.92	15.09	92.15	0.92	17.31	4.44	1.30
Power Line Connections	6.69	6.66	85.40	0.45	31.98	6.74	0.40
Testing	2.69	0.91	39.40	0.11	1.43	0.30	0.00
2012 Maximum Day Totals	**6.92**	**35.13**	**92.15**	**2.06**	**31.98**	**6.74**	**3.40**

* Average Daily Emissions For 2012, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases would follow sequentially with no overlaps.
Source: Tetra Tech analyses

Table 4.2-48
Summary of 2013 Daily On-Site Construction Emissions for Red Bluff Substation B

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Testing	2.51	0.82	34.01	0.11	1.43	0.30	0.00
Driveways, Other Paving, Security Wall	2.40	15.89	15.90	0.64	2.98	1.46	1.19
Site Cleanup	0.19	1.52	1.36	0.05	0.58	0.20	0.12
2013 Maximum Day Totals	**2.40**	**15.89**	**34.01**	**0.64**	**2.98**	**1.46**	**2.23**

* Average Daily Emissions For 2013, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases would follow sequentially with no overlaps.
Source: Tetra Tech analyses

Criteria Pollutant Emissions from Construction-Related Vehicle Traffic for Red Bluff Substation B. Emissions from construction-related traffic for Red Bluff Substation B were evaluated using the same procedures as discussed previously for Solar Farm Layout B. Table 4.2-49 summarizes annual vehicle trips used for the analysis of construction-related vehicle emissions for Red Bluff Substation B under Alternative 5.

Table 4.2-49
Construction-Related Vehicle Trips for Red Bluff Substation B

Year	Vehicle Trip Category	Annual 1-Way Trips	Average Daily 1-Way Trips	Mean 1-Way Trip Distance, miles	Annual VMT	Average Daily VMT
2011	Heavy-Heavy Trucks	77	0.5	75	5,775	36
2011	Personal Vehicle Commute	1,458	54.0	83	717,120	4,482
2012	Heavy-Heavy Trucks	5,507	22.5	75	413,025	1,686
2012	Personal Vehicle Commute	3,362	82.0	83	1,309,740	5,346
2013	Heavy-Heavy Trucks	5,507	22.5	75	413,025	1,686
2013	Personal Vehicle Commute	578	34.0	83	282,200	2,822

Vehicle travel calculations were performed by construction phase within each year. Different construction phases would have different durations. The overall total number of work days per year was not used in the calculations.
Source: Tetra Tech analyses

Annual and maximum day emissions associated with construction-related vehicle trips for Red Bluff Substation B are summarized in Table 4.2-50 and Table 4.2-51, respectively.

Table 4.2-50
Annual Emissions from Construction-Related Vehicle Traffic, Red Bluff Substation B

Traffic Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Emissions							
Construction Trucks	0.00	0.08	0.02	0.00	0.01	0.00	0.00
Personal Vehicle Commute	0.16	0.26	2.52	0.00	0.61	0.12	0.03
2011 Total	**0.17**	**0.33**	**2.53**	**0.00**	**0.62**	**0.12**	**0.03**
2012 Emissions							
Construction Trucks	0.27	4.72	1.17	0.01	0.57	0.25	0.23
Personal Vehicle Commute	0.29	0.44	4.37	0.01	1.12	0.21	0.05
2012 Total	**0.56**	**5.16**	**5.55**	**0.01**	**1.69**	**0.47**	**0.29**
2013 Emissions							
Construction Trucks	0.07	1.13	0.30	0.00	0.15	0.06	0.06
Personal Vehicle Commute	0.06	0.09	0.90	0.00	0.24	0.05	0.01
2013 Total	**0.13**	**1.21**	**1.20**	**0.00**	**0.39**	**0.11**	**0.07**

* Annual Emissions, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-51
Maximum Day Emissions from Construction-Related Vehicle Traffic, Red Bluff Substation B

Traffic Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Emissions							
Construction Trucks	0.05	0.94	0.22	0.00	0.10	0.05	0.04
Personal Vehicle Commute	2.03	3.25	31.45	0.04	7.68	1.45	0.36
2011 Total	**2.08**	**4.19**	**31.67**	**0.04**	**7.79**	**1.50**	**0.41**
2012 Emissions							
Construction Trucks	2.71	47.16	11.74	0.07	5.71	2.54	2.33
Personal Vehicle Commute	2.82	4.37	43.22	0.06	11.10	2.10	0.52
2012 Total	**5.53**	**51.53**	**54.96**	**0.14**	**16.80**	**4.64**	**2.86**
2013 Emissions							
Construction Trucks	1.32	22.51	5.98	0.04	3.02	1.29	1.16
Personal Vehicle Commute	1.19	1.77	17.93	0.03	4.84	0.92	0.23
2013 Total	**2.51**	**24.28**	**23.91**	**0.07**	**7.86**	**2.21**	**1.39**

* Maximum Day Emissions, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases overlap at some point during a construction year due to different activities occurring on multiple subareas.
Source: Tetra Tech analyses

Hazardous Air Pollutant Emissions. The primary hazardous air pollutant emission associated with construction and operation of Red Bluff Substation B would be diesel particulate matter emissions from construction equipment. Those emissions have been quantified in the construction emissions tables presented above. Small quantities of other hazardous air pollutants would be associated with gasoline-fueled vehicles also used during construction. There would be few operational sources of hazardous air pollutant emissions other than limited and infrequent on-site vehicle traffic for periodic facility inspection and necessary maintenance activities. As noted previously, there are no sensitive receptors in the immediate vicinity of the Substation site. The quantities of hazardous pollutant emissions associated with substation construction and operation are expected to be too small to pose an adverse health risk to the nearest residences.

Changes in Night Sky Visibility due to Project-Related Fugitive Dust. Fugitive dust emissions during construction of Red Bluff Substation B would occur primarily during daytime hours. Airborne dust generated from the site would be widely dispersed and greatly reduced in concentration by nighttime hours. As noted previously, the Substation site would not be an adverse source of dust from wind erosion. Consequently, the Substation would not produce adverse dust-related changes in night sky visibility.

Summary of Construction Impacts for Alternative 2

Construction activities and associated vehicle traffic under Alternative 2 would generate emissions of criteria pollutants and hazardous air pollutants over a period of approximately 26 months.

Construction-related emissions generally would be limited to daytime hours on weekdays, and would have little effect on night sky visibility conditions. No odor problems would be expected as a result of construction-related activity or vehicle traffic.

Operation and Maintenance

Solar Farm Layout B

The impacts resulting from operating and maintaining SF-B under Alternative 2 would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

Criteria Pollutant Emissions from Facility Operations. Operational emissions for GT-B-2 would be minimal, resulting from periodic line inspections and any necessary maintenance activity. Assuming two line inspections and one maintenance event per year, operational activities would typically produce maximum daily emissions of less than 2.5 pounds of nitrogen oxide and less than 0.7 pounds of PM_{10}.

Net Change in Wind Erosion from the Project Site. No quantitative analysis of wind erosion conditions has been conducted for GT-B-2 since the area of disturbance is relatively narrow linear corridor with adjacent undisturbed areas providing at least partial shielding from wind erosion. Vegetation within the disturbance area would be cleared only where necessary for laydown and staging areas, tower assembly areas, and other localized work areas. The size and orientation of cleared and disturbed areas would avoid any large changes in wind erosion conditions along the Gen-Tie Line corridor.

Compliance with Air Quality Plans and Regulatory Requirements. GT-B-2 would not conflict with any adopted air quality management plan and is expected to be in compliance with all local, state, and federal regulatory requirements. Most equipment used during project construction of GT-B-2 would be mobile equipment exempt from regulation as stationary sources. Other equipment such as portable generators and air compressors, would most likely be registered under the CARB statewide portable equipment registration program, and thus would be exempt from SCAQMD regulation. In addition, construction equipment would be expected to operate in compliance with state regulations governing unnecessary idling of diesel engine equipment (CARB 2008a, 2008d). As noted in the Air Resources section of Chapter 3, the Applicant would comply with various SCAQMD rules and regulations, including Rule 403 (fugitive dust control), Rule 1113 (architectural coatings), Rule 442 (usage of solvents), and Rule 1171 (solvent cleaning operations).

Because eastern Riverside County has no federal nonattainment or maintenance designations, federal agency actions in eastern Riverside County are not required to conduct formal Clean Air Act conformity reviews.

Emissions from Corona Discharge. Electrical transmission lines are designed to minimize corona discharge effects, since corona discharge represents a loss of transmitted energy. Corona discharge occurs along high voltage transmission lines primarily during rainstorm events. Ionization of air during corona discharge events can result in chemical reactions that generate small quantities of ozone and even smaller quantities of nitrogen oxides. The quantities of ozone and nitrogen oxides produced by corona discharge effects are too small to have ambient air quality effects. Corona discharge generally is not an issue with transmission lines rated at 230 kV or less (PG&E 2002).

Odors. Vehicle emissions and fugitive dust represent the primary air pollutants associated with operation and maintenance of GT-B-2. Because these emissions would be minimal, they would not be considered adverse odor sources. Corona discharge effects along high voltage transmission lines during rainstorms can generate small quantities of ozone, which has a pungent odor. Corona discharge only occurs during rainstorms, and any resulting ozone odor generally is not noticeable beyond the transmission line right of way. In addition, stratospheric ozone transported to ground level by air turbulence is commonly noticed during thunderstorms. It is difficult to distinguish ozone generated by corona discharge from stratospheric ozone that has been entrained in thunderstorms and carried by vertical turbulence to ground level.

Red Bluff Substation B

Criteria Pollutant Emissions from Facility Operations. Operational emissions for Red Bluff Substation B would be minimal, resulting from periodic facility inspections and necessary maintenance activity. Assuming two line inspections and one maintenance event per year, operational activities would typically produce maximum daily emissions of less than 2.5 pounds of nitrogen oxide and less than 0.7 pounds of PM_{10}.

Net Change in Wind Erosion from the Project Site. No quantitative analysis of wind erosion conditions has been conducted for Red Bluff Substation B, since the Substation area would be covered by non-erodible surfaces (concrete pads, asphalt paving, or gravel).

Compliance with Air Quality Plans and Regulatory Requirements. Red Bluff Substation B would not conflict with any adopted air quality management plan and is expected to be in compliance with all local, state, and federal regulatory requirements. Most equipment used during project construction of Red Bluff Substation B would be mobile equipment exempt from regulation as stationary sources. Other equipment such as portable generators and air compressors, would most likely be registered under the CARB statewide portable equipment registration program, and thus would be exempt from SCAQMD regulation. In addition, construction equipment would be expected to operate in compliance with state regulations governing unnecessary idling of diesel engine equipment (CARB 2008a, 2008d). As noted in the Air Quality section of Chapter 3, SCE would need to comply with various SCAQMD rules and regulations, including Rule 403 (fugitive dust control), Rule 1113 (architectural coatings), Rule 442 (usage of solvents), and Rule 1171 (solvent cleaning operations).

Because eastern Riverside County has no federal nonattainment or maintenance designations, federal agency actions in eastern Riverside County are not required to conduct formal CAA conformity reviews.

Emissions from Corona Discharge. Electrical transmission lines and substation equipment are designed to minimize corona discharge effects, since corona discharge represents a loss of transmitted energy. Corona discharge occurs along high voltage transmission lines and at substation equipment primarily during rainstorm events. Ionization of air during corona discharge events can result in chemical reactions that generate small quantities of ozone and even smaller quantities of nitrogen oxides. The quantities of ozone and nitrogen oxides produced by corona discharge effects are too small to have ambient air quality effects (PG&E 2002).

Odors. Vehicle emissions and fugitive dust represent the primary air pollutants associated with operation and maintenance of Red Bluff Substation B. Because these emissions would be minimal, they would not be considered adverse odor sources. Corona discharge effects at high voltage substation equipment during rainstorms can generate small quantities of ozone, which has a pungent odor. Corona discharge only occurs during rainstorms, and any resulting ozone odor generally is not noticeable beyond the substation site. In addition, stratospheric ozone transported to ground level by air turbulence is commonly noticed during thunderstorms. It is difficult to distinguish ozone generated by corona discharge from stratospheric ozone that has been entrained in thunderstorms and carried by vertical turbulence to ground level.

Summary of Operation and Maintenance Impacts for Alternative 2

Operation and maintenance activities and associated vehicle traffic under Alternative 2 would generate limited amounts of emissions of criteria pollutants and hazardous air pollutants for the duration of Project operations. Changes in ground cover conditions would result in limited increases in wind erosion potential for the Solar Farm site and Gen-Tie Line corridor, but not at the Red Bluff Substation site. Alternative 2 would not conflict with any air quality management plan, and would be expected to comply with federal, state, and SCAQMD regulatory requirements. Operation and maintenance conditions for Alternative 2 are not expected to create any air quality issues related to corona discharge or odors.

Decommissioning

Solar Farm Layout B

The impacts resulting from decommissioning SF-B under Alternative 2 would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

The impacts resulting from decommissioning GT-B-2 under Alternative 2 would be similar to those discussed for GT-A-1 under Alternative 1.

Red Bluff Substation B

The impacts resulting from decommissioning Red Bluff Substation B under Alternative 2 would be similar to those discussed for Red Bluff Substation A under Alternative 1.

Summary of Decommissioning Impacts for Alternative 2

Air quality impacts of facility decommissioning would be generally similar in nature to those of facility construction, but emission quantities would likely be less than those generated by construction activities. Equipment engine emissions, in particular, might be considerably less than those from construction activity due to future changes in engine and fuel technology. Decommissioning activities would not require the extent of vegetation clearing and site grading associated with facility construction.

Summary of Combined Impacts for Alternative 2

The preceding analyses have identified impacts associated with individual components of Alternative 2 (Solar Farm Layout B, GT-B-2, and Red Bluff Substation B). The following discussion provides a summary of air quality impacts reflecting the combined effects of all components of Alternative 2.

Criteria Pollutant Emissions from Overall Construction Activity. Overall construction activity for Alternative 2 would include on-site construction activities and construction-related vehicle traffic for Solar Farm Layout B, GT-B-2, and Red Bluff Substation B. Annual and maximum day emissions associated with overall construction activity for Alternative 2 are summarized in Table 4.2-52 and Table 4.2-53, respectively.

Table 4.2-52
Annual Emissions from Combined Construction Activity for Alternative 2

Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Construction Activity							
Solar Farm B	9.64	63.14	87.10	2.49	18.42	6.97	4.92
Transmission Line B-2	1.37	4.07	18.38	0.14	2.40	0.64	0.35
Red Bluff Substation B	0.40	2.22	4.06	0.12	1.13	0.36	0.23
2011 Total	**11.41**	**69.43**	**109.54**	**2.75**	**21.95**	**7.97**	**5.49**
2012 Construction Activity							
Solar Farm B	11.45	71.36	99.25	2.53	21.49	7.92	5.46
Transmission Line B-2	0.01	0.03	0.09	0.00	0.03	0.01	0.00
Red Bluff Substation B	1.27	6.76	14.93	0.11	3.77	0.98	0.42
2012 Total	**12.73**	**78.15**	**114.28**	**2.64**	**25.29**	**8.91**	**5.88**
2013 Construction Activity							
Solar Farm B	0.12	0.67	1.03	0.02	0.68	0.17	0.05
Red Bluff Substation B	0.23	1.56	2.29	0.02	0.48	0.15	0.09
2013 Total	**0.35**	**2.23**	**3.32**	**0.04**	**1.17**	**0.32**	**0.15**

* Annual Emissions, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-53
Daily Emissions from Combined Construction Activity for Alternative 2

Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Construction Activity							
Solar Farm B	145.5	934.9	1,296.1	37.1	266.4	102.2	72.2
Transmission Line B-2	29.7	92.1	424.4	3.9	39.5	13.1	8.8
Red Bluff Substation B	6.3	42.6	60.1	2.7	17.3	6.4	4.6
2011 Total	**181.4**	**1,069.5**	**1,780.7**	**43.7**	**323.2**	**121.7**	**85.6**
2012 Construction Activity							
Solar Farm B	119.7	749.1	1,023.9	29.2	224.8	85.3	59.6
Transmission Line B-2	0.7	2.5	9.0	0.1	2.5	0.6	0.2
Red Bluff Substation B	12.4	86.7	147.1	2.2	48.8	11.4	6.3
2012 Total	**132.8**	**838.2**	**1,180.0**	**31.5**	**276.1**	**97.2**	**66.1**
2013 Construction Activity							
Solar Farm B	10.5	60.1	85.6	2.2	66.1	16.4	2.7
Red Bluff Substation B	4.9	40.2	57.9	0.7	10.8	3.7	3.6
2013 Total	**15.4**	**100.3**	**143.5**	**2.9**	**77.0**	**20.1**	**6.3**

* Daily Emissions, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Hazardous Air Pollutant Emissions. The primary hazardous air pollutant emission associated with the different components of Alternative 2 would be diesel particulate matter emissions from construction equipment. Those emissions have been quantified in the construction emissions tables presented above. Small quantities of other hazardous air pollutants would be associated with gasoline-fueled vehicles also operating on-site during Solar Farm construction. The location of hazardous pollutant emissions from construction equipment operation would vary across the facility construction sites over the construction period, and thus would not be in a fixed location for long periods of time. There would be few sources of hazardous air pollutant emissions other than limited on-site vehicle traffic at the Solar Farm site during facility operation. There are only a few rural residences within one mile of the Solar Farm site, and only one rural residence within ¼-mile of boundary of the proposed Solar Farm. There are some scattered residences and the Lake Tamarisk development near those portions of the alignment for GT-B-2 that follow Kaiser Road. The limited duration of construction activity at any one location along the Gen-Tie Line corridor would minimize health risks from construction equipment engine exhaust. There are no sensitive receptors near Red Bluff Substation B.

Changes in Night Sky Visibility due to Project-Related Fugitive Dust. Fugitive dust emissions during construction of project facilities would occur primarily during daytime hours. The Applicant would implement a dust control plan including the use of dust suppressants during facility construction. Airborne dust generated from construction sites would be widely dispersed and greatly reduced in concentration by nighttime hours. Construction activity would be phased across the Solar Farm site over a 26-month period, limiting the amount of disturbed area that could produce fugitive dust from

wind erosion at night. As noted previously, development of the Solar Farm site would result in only a small increase in wind erosion potential compared to natural conditions. Consequently, the combined effects of facility components for Alternative 2 would not produce significant dust-related changes in night sky visibility.

Criteria Pollutant Emissions from Facility Operations. Alternative 2 would have limited operational emissions. Most operational emissions would involve vehicle travel by Solar Farm employees or other employees conducting periodic inspections or maintenance activity along the Gen- Tie Line or at the Red Bluff Substation. Annual and daily operational emissions for Alternative 2 are summarized in Table 4.2-54 and Table 4.2-55, respectively.

Table 4.2-54
Annual Emissions from Combined Operational Traffic for Alternative 2

Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Solar Farm B	0.15	1.09	2.13	0.01	0.67	0.14	0.05
Transmission Line B-2	0.0001	0.0012	0.0013	0.0000	0.0005	0.0001	0.0000
Red Bluff Substation B	0.0001	0.0012	0.0013	0.0000	0.0005	0.0001	0.0000
Total	**0.15**	**1.09**	**2.14**	**0.01**	**0.67**	**0.14**	**0.05**

* Annual Emissions, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-55
Daily Emissions from Combined Operational Traffic for Alternative 2

Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Solar Farm B	0.80	5.98	11.70	0.03	3.65	0.77	0.27
Transmission Line B-2	0.11	2.28	1.53	0.01	0.63	0.15	0.07
Red Bluff Substation B	0.11	2.28	1.53	0.01	0.63	0.15	0.07
Total	**1.03**	**10.53**	**14.76**	**0.04**	**4.91**	**1.07**	**0.42**

* Daily Emissions, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
The SCAQMD localized impact significance thresholds are not applicable to off-site traffic emissions.
Source: Tetra Tech analyses

As indicated in Table 4.2-54 and Table 4.2-55, annual and daily emissions from traffic associated with facility operations would generate only limited quantities of pollutant emissions. The on-site visitor's center at the Solar Farm is not expected to draw a high volume of visitor traffic. Consequently, emissions associated with vehicle travel to the on-site visitor center also would be limited. Small amounts of volatile organic compounds would be released any time buildings or equipment enclosures need to be repainted. Small amounts of organic compounds and perhaps other pollutants would be released from the use of janitorial materials and other equipment maintenance materials.

Net Change in Wind Erosion from the Project Site. Changes in wind erosion conditions have been evaluated using procedures discussed previously for Solar Farm Layout B under Alternative 1. Development of Solar Farm Layout B would replace natural vegetation and ground surface conditions with cleared land, solar panel arrays, buildings, equipment pads, gravel roads, and related features. There would be a change in wind erosion conditions associated with these land surface changes. As discussed previously, construction of GT-B-2 and Red Bluff Substation B would have minimal effects on wind erosion conditions in the Project area. Thus, the net change in wind erosion conditions for the combined components of Alternative 2 would be the same as presented previously in Table 4.2-31.

The change in ground cover conditions for Solar Farm Layout B is expected to increase the wind erosion susceptibility of the site by a small amount. On a per-acre basis, this change would be quite small, amounting to only 0.144 pounds of PM_{10} per acre per day (less than one ounce per acre per day). Such a small change in wind erosion conditions would not be detectable by visual observation, and probably would not be detectable by instrumental monitoring equipment. But when aggregated over the entire 4,245-acre site, the total net increase in PM_{10} emissions from wind erosion would average approximately 185 pounds per day.

Compliance with Air Quality Plans and Regulatory Requirements. Alternative 2 would not conflict with any air quality management plan, and is expected to be in compliance with all local, state, and federal regulatory requirements. Most equipment used during Project construction of the various project components would be mobile equipment exempt from regulation as stationary sources. Other equipment such as portable generators and air compressors, would most likely be registered under the CARB statewide portable equipment registration program, and thus would be exempt from SCAQMD regulation. The power screeners used during Solar Farm construction would either be provided directly by construction contractors or would be rented equipment items. In either case, that equipment would most likely be registered under the CARB statewide portable equipment registration program or would be operating under the owner's existing SCAQMD permits. In addition, construction equipment would be expected to operate in compliance with state regulations governing unnecessary idling of diesel engine equipment (CARB 2008a, 2008d). As noted in the Air Quality section of Chapter 3, the applicant and SCE would need to comply with various SCAQMD rules and regulations, including Rule 403 (fugitive dust control), Rule 1113 (architectural coatings), Rule 442 (usage of solvents), and Rule 1171 (solvent cleaning operations).

Because eastern Riverside County has no federal nonattainment or maintenance designations, federal agency actions in eastern Riverside County are not required to conduct formal CAA conformity reviews.

Emissions from Corona Discharge. Electrical transmission lines and substation equipment are designed to minimize corona discharge effects, since corona discharge represents a loss of transmitted energy. Corona discharge occurs along high voltage transmission lines and at substation equipment primarily during rainstorm events. Ionization of air during corona discharge events can result in chemical reactions that generate small quantities of ozone and even smaller quantities of nitrogen oxides. The quantities of ozone and nitrogen oxides produced by corona discharge effects are too small to have ambient air quality effects (PG&E 2002).

Odors. Vehicle emissions and fugitive dust represent the primary air pollutants associated with the combined facilities for Alternative 2. These emission sources are not considered significant odor sources. Corona discharge effects at high voltage substation equipment during rainstorms can generate small quantities of ozone, which has a pungent odor. Corona discharge only occurs during rainstorms, and any resulting ozone odor generally is not noticeable beyond the substation site. In addition, stratospheric ozone transported to ground level by air turbulence is commonly noticed during thunderstorms. It is difficult to distinguish ozone generated by corona discharge from stratospheric ozone that has been entrained in thunderstorms and carried by vertical turbulence to ground level.

Applicant Measures and Mitigation Measures

Applicant measures and mitigation measures for Alternative 2 would be the same as those discussed for Alternative 1.

CEQA Significance Determination

Solar Farm Layout B

The CEQA significance determinations for SF-B under Alternative 2 would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

The CEQA significance determinations for GT-B-2 under Alternative 2 would be the same as those discussed for GT-A-1 under Alternative 1.

Red Bluff Substation B

The CEQA significance determinations for Red Bluff Substation B under Alternative 2 would be the same as those discussed for Red Bluff Substation A under Alternative 1.

Unavoidable Adverse Effects

On-site construction activities and construction-related traffic for Solar Farm Layout B would produce ozone precursor emissions (reactive organic compounds and nitrogen oxides) and particulate matter emissions (PM_{10} and $PM_{2.5}$) that exceed SCAQMD regional emissions significance thresholds. Mitigation measures MM-AIR-1 and MM-AIR-2 would reduce these emissions somewhat, but would not reduce emissions to a level less than the SCAQMD regional emissions significance thresholds. Consequently, construction-related emissions for Solar Farm Layout B would be an unavoidable significant air quality impact under Alternative 2.

4.2.5 Alternative 3 – Reduced Footprint Alternative

Construction

Solar Farm Layout C

Criteria Pollutant Emissions from On-Site Construction Activity, Solar Farm Layout C. On-site construction activity impacts have been evaluated using a detailed spreadsheet model as discussed under Alternative 1. Appendix D-1 provides a more detailed explanation of the spreadsheet model.

Solar Farm development under Alternative C would occur over a 26-month period, with construction activity undertaken as a rolling sequence of activity on different subareas of the site. For analysis purposes, it was assumed that construction activity would be initiated on about 8 acres per day (about 39.8 acres per week). The phases of construction are the same as those described for SF-B under Alternative 1.

Construction activity would generally occur over a standard five-day workweek with activity limited to daytime hours. 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.

Fugitive dust generation estimates for Solar Farm Layout C under Alternative 3 were prepared in the same manner as discussed for SF-B under Alternative 1. Dust control measures for SF-C construction activities under Alternative 3 also would be the same as discussed for SF-B under Alternative 1.

Emission estimates for on-site construction activity are summarized in a series of tables below. Table 4.2-56, Table 4.2-57, and Table 4.2-58 summarize annual emissions in tons per year for 2011, 2012, and 2013, respectively. Table 4.2-59, Table 4.2-60, and Table 4.2-61 summarize average daily emissions in pounds per day for 2011, 2012, and 2013, respectively. Additional details concerning the construction emissions analyses are provided in Appendix D-2.

Table 4.2-56
Summary of 2011 Annual On-Site Construction Emissions for Solar Farm Layout C

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Tortoise Exclusion Fencing	0.06	0.31	0.53	0.01	0.03	0.02	0.02
Access Roads and Staging Areas	0.39	2.98	2.98	0.15	0.29	0.25	0.26
Construction Offices and Water/Sanitation Facilities	0.11	0.74	0.54	0.03	0.34	0.11	0.05
Security Fencing and Debris Basins	0.14	0.59	1.34	0.03	0.07	0.05	0.04
Site Clearing	0.42	2.30	2.85	0.11	1.91	0.51	0.18
Site Grading	1.41	12.89	10.78	0.93	3.20	1.70	1.47
Array Support Posts	0.35	2.91	3.10	0.08	1.32	0.38	0.16
Trenching and Underground Cables	0.33	2.00	2.61	0.08	0.53	0.21	0.15
Soil Compacting and Dust Palliative	0.48	4.28	4.29	0.29	0.79	0.45	0.41
On-Site Power Poles	0.05	0.15	0.47	0.01	0.02	0.01	0.01
Switchgear Facilities	0.17	0.76	1.63	0.04	0.07	0.07	0.07
On-Site Substation	0.17	0.56	1.73	0.03	0.26	0.09	0.05
Solar Array Assemblies	2.04	2.90	22.38	0.16	0.56	0.25	0.17
On-Site Overhead Power Lines	0.05	0.48	0.37	0.02	0.04	0.04	0.04
2011 Totals	**6.17**	**33.87**	**55.60**	**1.98**	**9.43**	**4.13**	**3.09**

* Annual Emissions For 2011, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-57
Summary of 2012 Annual On-Site Construction Emissions for Solar Farm Layout C

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Access Roads and Staging Areas	0.11	0.84	0.86	0.04	0.08	0.07	0.07
Site Clearing	0.44	2.40	2.86	0.10	2.10	0.56	0.19
Site Grading	1.43	12.92	11.16	0.90	3.32	1.73	1.48
Array Support Posts	0.44	3.66	3.83	0.09	1.75	0.50	0.20
Trenching and Underground Cables	0.40	2.39	3.09	0.09	0.69	0.26	0.17
Soil Compacting and Dust Palliative	0.68	5.87	6.32	0.37	1.17	0.66	0.58
On-Site Power Poles	0.06	0.19	0.55	0.01	0.02	0.02	0.02
Switchgear Facilities	0.25	1.08	2.15	0.05	0.10	0.09	0.10
Solar Array Assemblies	2.84	4.00	26.83	0.21	0.83	0.36	0.24
On-Site Overhead Power Lines	0.08	0.67	0.57	0.03	0.06	0.05	0.06
Permanent Buildings	0.06	0.26	0.41	0.01	0.12	0.04	0.02
Functional Testing	0.31	0.97	2.59	0.02	0.11	0.05	0.04
2012 Totals	**7.08**	**35.27**	**61.22**	**1.93**	**10.36**	**4.38**	**3.17**

* Annual Emissions For 2012, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-58
Summary of 2013 Annual On-Site Construction Emissions for Solar Farm Layout C

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Functional Testing	0.02	0.10	0.12	0.00	0.01	0.00	0.00
De-Compaction and Dust Palliative	0.05	0.34	0.36	0.02	0.41	0.10	0.03
Site Cleanup	0.02	0.07	0.13	0.00	0.03	0.01	0.01
2013 Totals	**0.08**	**0.50**	**0.61**	**0.02**	**0.45**	**0.12**	**0.04**

* Annual Emissions For 2013, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-59
Summary of 2011 Daily On-Site Construction Emissions for Solar Farm Layout C

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Tortoise Exclusion Fencing	1.42	7.28	12.23	0.32	0.79	0.52	0.50
Access Roads and Staging Areas	8.71	67.04	66.94	3.42	6.57	5.60	5.94
Construction Offices and Water/Sanitation Facilities	5.10	34.40	25.34	1.55	16.08	5.04	2.53
Security Fencing and Debris Basins	2.19	9.15	20.78	0.44	1.16	0.71	0.65
Site Clearing	5.23	28.81	35.65	1.35	24.58	6.56	2.28
Site Grading	17.61	161.10	134.72	11.64	40.70	21.39	18.40
Array Support Posts	4.98	41.63	44.33	1.12	19.05	5.49	2.33
Trenching and Underground Cables	4.69	28.56	37.25	1.16	7.69	3.07	2.11
Soil Compacting and Dust Palliative	6.92	61.09	61.33	4.19	11.43	6.51	5.85
On-Site Power Poles	1.89	6.11	19.37	0.34	0.63	0.52	0.53
Switchgear Facilities	2.50	10.86	23.27	0.59	1.04	0.94	1.01
On-Site Substation	7.81	26.21	80.31	1.38	12.32	4.07	2.17
Solar Array Assemblies	29.19	41.49	319.69	2.24	8.22	3.55	2.41
On-Site Overhead Power Lines	2.14	19.53	15.07	0.94	1.67	1.47	1.58
2011 Maximum Day Totals	**100.39**	**543.27**	**896.26**	**30.67**	**151.93**	**65.45**	**48.27**

* Average Daily Emissions For 2011, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases overlap at some point during a construction year due to different activities occurring on multiple subareas, although the construction offices phase probably would not overlap with all of the other phases.
Source: Tetra Tech analyses

Table 4.2-60
Summary of 2012 Daily On-Site Construction Emissions for Solar Farm Layout C

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Access Roads and Staging Areas	7.59	55.89	57.26	2.57	5.66	4.55	4.73
Site Clearing	4.93	26.72	31.76	1.16	24.40	6.40	2.10
Site Grading	16.48	149.42	129.00	10.43	39.40	20.20	17.10
Array Support Posts	4.55	38.12	39.94	0.91	18.86	5.32	2.13
Trenching and Underground Cables	4.20	24.94	32.14	0.90	7.39	2.79	1.81
Soil Compacting and Dust Palliative	6.18	53.39	57.44	3.39	10.90	6.02	5.32
On-Site Power Poles	1.71	5.49	15.71	0.28	0.57	0.46	0.47
Switchgear Facilities	2.24	9.84	19.55	0.49	0.92	0.83	0.88
Solar Array Assemblies	26.40	37.19	249.63	2.00	8.01	3.35	2.19
On-Site Overhead Power Lines	1.95	17.52	14.84	0.76	1.53	1.35	1.44
Permanent Buildings	2.07	9.69	15.12	0.40	4.80	1.52	0.77
Functional Testing	3.07	9.68	25.87	0.17	1.10	0.51	0.38
2012 Maximum Day Totals	**81.36**	**437.89**	**688.26**	**23.44**	**123.55**	**53.30**	**39.34**

* Average Daily Emissions For 2012, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases overlap at some point during a construction year due to different activities occurring on multiple subareas.
Source: Tetra Tech analyses

Table 4.2-61
Summary of 2013 Daily On-Site Construction Emissions for Solar Farm Layout C

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Functional Testing	1.78	9.07	11.24	0.09	1.06	0.47	0.36
De-Compaction and Dust Palliative	4.29	32.06	34.45	1.49	42.76	10.72	3.00
Site Cleanup	1.79	6.38	12.79	0.39	3.34	1.15	0.66
2013 Maximum Day Totals	**7.86**	**47.51**	**58.48**	**1.97**	**47.16**	**12.35**	**4.01**

* Average Daily Emissions For 2013, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
NA = not applicable
Analysis assumes that all phases overlap at some point during a construction year due to different activities occurring on multiple subareas.
Source: Tetra Tech analyses

Criteria Pollutant Emissions from Construction-Related Vehicle Traffic for Solar Farm Layout C. Emissions from construction-related traffic for Solar Farm Layout C were evaluated using the same procedures as those discussed previously for SF-B under Alternative 1. Table 4.2-62 summarizes annual vehicle trips used for the analysis of construction-related vehicle emissions for SF-C under Alternative 3.

Table 4.2-62
Construction-Related Vehicle Trips for Solar Farm Layout C

Year	Vehicle Trip Category	Annual 1-Way Trips	Average Daily 1-Way Trips	Mean 1-Way Trip Distance, miles	Annual VMT	Average Daily VMT
2011	Heavy-Heavy Trucks	8,249	33.1	141	1,159,950	4,658
2011	Shuttles	16,932	68.0	73	828,478	3,327
2011	Personal Vehicle Commute	4,050	90.0	83	1,236,866	4,967
2011	To/From Assembly Point	238,542	958.0	16	2,042,871	8,204
2012	Heavy-Heavy Trucks	10,689	42.2	156	1,669,605	6,599
2012	Shuttles	13,662	54.0	73	874,447	3,456
2012	Personal Vehicle Commute	2,888	76.0	83	1,395,396	5,515
2012	To/From Assembly Point	198,352	784.0	16	2,247,251	8,882
2013	Heavy-Heavy Trucks	43	1.3	75	3,225	95
2013	Shuttles	272	8.0	73	19,910	586
2013	Personal Vehicle Commute	72	12.0	83	33,864	996
2013	To/From Assembly Point	3,808	112.0	16	49,047	1,443

Vehicle travel calculations were performed by construction phase within each year. Different construction phases would have different durations. The overall total number of work days per year was not used in the calculations.
Source: Tetra Tech analyses

Annual and maximum day emissions associated with construction-related vehicle trips for Solar Farm Layout C are summarized in Table 4.2-63 and Table 4.2-64, respectively.

Table 4.2-63
Annual Emissions from Construction-Related Vehicle Traffic, Solar Farm Layout C

Traffic Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Emissions							
Construction Trucks	0.84	15.08	3.53	0.02	1.67	0.77	0.72
Shuttle Buses	0.13	0.43	1.28	0.00	0.70	0.12	0.03
Personal Vehicle Commute	0.28	0.45	4.34	0.01	1.06	0.20	0.05
To/From Shuttle Assembly Areas	0.46	0.74	7.17	0.01	1.75	0.33	0.08
2011 Total	**1.71**	**16.70**	**16.32**	**0.04**	**5.18**	**1.43**	**0.88**
2012 Emissions							
Construction Trucks	1.09	19.06	4.75	0.03	2.31	1.03	0.94
Shuttle Buses	0.12	0.43	1.21	0.00	0.74	0.13	0.03
Personal Vehicle Commute	0.30	0.47	4.66	0.01	1.20	0.23	0.06
To/From Shuttle Assembly Areas	0.49	0.76	7.50	0.01	1.93	0.36	0.09
2012 Total	**2.01**	**20.72**	**18.11**	**0.05**	**6.17**	**1.75**	**1.12**
2013 Emissions							
Construction Trucks	0.002	0.032	0.009	0.000	0.004	0.002	0.002
Shuttle Buses	0.003	0.009	0.024	0.000	0.017	0.003	0.001
Personal Vehicle Commute	0.007	0.011	0.108	0.000	0.029	0.006	0.001
To/From Shuttle Assembly Areas	0.010	0.015	0.156	0.000	0.042	0.008	0.002
2013 Total	**0.022**	**0.067**	**0.296**	**0.001**	**0.092**	**0.018**	**0.006**

* Annual Emissions, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-64
Maximum Day Emissions from Construction-Related Vehicle Traffic, Solar Farm Layout C

Traffic Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Emissions							
Construction Trucks	11.61	207.45	48.60	0.28	22.92	10.64	9.89
Shuttle Buses	1.53	5.17	15.43	0.06	8.44	1.50	0.31
Personal Vehicle Commute	3.38	5.41	52.42	0.07	12.80	2.42	0.60
To/From Shuttle Assembly Areas	5.58	8.94	86.58	0.12	21.15	4.00	1.00
2011 Total	**22.11**	**226.97**	**203.03**	**0.53**	**65.31**	**18.55**	**11.80**
2012 Emissions							
Construction Trucks	8.87	154.54	38.47	0.24	18.70	8.34	7.65
Shuttle Buses	1.13	3.88	10.92	0.04	6.70	1.19	0.25
Personal Vehicle Commute	2.75	4.26	42.11	0.06	10.81	2.04	0.51
To/From Shuttle Assembly Areas	4.40	6.81	67.42	0.10	17.31	3.27	0.81
2012 Total	**17.15**	**169.49**	**158.92**	**0.44**	**53.52**	**14.84**	**9.22**
2013 Emissions							
Construction Trucks	0.11	1.88	0.50	0.00	0.25	0.11	0.10
Shuttle Buses	0.15	0.53	1.44	0.01	0.99	0.18	0.04
Personal Vehicle Commute	0.42	0.62	6.33	0.01	1.71	0.32	0.08
To/From Shuttle Assembly Areas	0.61	0.90	9.16	0.01	2.47	0.47	0.12
2013 Total	**1.29**	**3.94**	**17.43**	**0.03**	**5.43**	**1.08**	**0.33**

* Maximum Day Emissions, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases overlap at some point during a construction year due to different activities occurring on multiple subareas.
Source: Tetra Tech analyses

Construction-related traffic would be distributed among the Mojave Desert, Salton Sea, and South Coast air basins. Almost half of the heavy truck traffic emissions would occur in the Mojave Desert Air Basin, since many material deliveries would originate in states east of California. The remaining heavy truck traffic would be split between the Salton Sea and South Coast air basins. Construction worker commute emissions (shuttles, personal vehicle commutes, and traffic to/from shuttle assembly areas) would be split primarily between the Mojave Desert and Salton Sea air basins, with a relatively smaller component in the South Coast Air Basin. Approximately 50 percent of the construction-related traffic emissions in the Mojave Desert Air Basin would occur within the SCAQMD jurisdiction portion, with the remainder in the MDAQMD jurisdiction portion (refer to Figures 3.2-1 and 3.2-2 in the Air Resources section of Chapter 3 for AQMD and air basin boundaries). At least two-thirds of the remaining emissions would probably occur in the Salton Sea Air Basin, with the remainder occurring in the South Coast Air Basin.

Hazardous Air Pollutant Emissions. Hazardous air pollutant issues for the Solar Farm under Alternative 3 would be the similar to those discussed under Alternatives 1 and 2. Emissions of diesel particulate matter during construction are presented above, and would be somewhat less than the comparable emissions under SF-B.

Odors. Vehicle emissions and fugitive dust represent the primary air pollutants associated with the Solar Farm. These emission sources are not considered significant odor sources.

Changes in Night Sky Visibility Due to Project-Related Fugitive Dust. Night sky visibility considerations for the SF-C under Alternative 3 would be similar to those discussed for SF-B under Alternatives 1 and 2.

Gen-Tie Line A-2

Emissions from On-Site Construction Activity. On-site construction activity impacts have been evaluated using a detailed spreadsheet model as discussed previously for SF-B under Alternative 1. GT-A-2 would be about 9.5 miles long with 55 towers. Approximately 62 acres of the 185-acre transmission line corridor would be disturbed by construction. The construction scenario and assumptions are the same as those described for GT-A-1 under Alternative 1.

Emission estimates for on-site construction activity are summarized in a series of tables below. Table 4.2-65 and Table 4.2-66 summarize annual emissions in tons per year for 2011 and 2012, respectively. Table 4.2-67 and Table 4.2-68 summarize average daily emissions in pounds per day for 2011 and 2012, respectively. Additional details concerning the construction emissions analyses are provided in Appendix D-2.

Table 4.2-65
Summary of 2011 Annual On-Site Construction Emissions for Gen-Tie Line A-2

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Site Preparation	0.04	0.32	0.21	0.02	0.07	0.04	0.03
Tower Foundations	0.10	0.53	1.06	0.02	0.07	0.06	0.06
Tower Assembly and Erection	0.07	0.54	0.43	0.03	0.09	0.06	0.05
Power Line Stringing	0.50	0.64	7.16	0.05	0.08	0.06	0.05
Testing	0.08	0.03	1.25	0.00	0.01	0.00	0.00
2011 Totals	**0.79**	**2.06**	**10.11**	**0.12**	**0.32**	**0.21**	**0.20**

* Annual Emissions For 2011, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-66
Summary of 2012 Annual On-Site Construction Emissions for Gen-Tie Line A-2

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Site Cleanup	0.002	0.016	0.012	0.001	0.008	0.002	0.001
2012 Totals	**0.002**	**0.016**	**0.012**	**0.001**	**0.008**	**0.002**	**0.001**

* Annual Emissions For 2012, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-67
Summary of 2011 Daily On-Site Construction Emissions for Gen-Tie Line A-2

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Site Preparation	4.92	42.41	27.51	2.68	9.90	4.92	4.08
Tower Foundations	4.62	23.76	46.92	1.06	2.92	2.65	2.85
Tower Assembly and Erection	2.06	16.52	13.31	0.89	2.97	1.76	1.62
Power Line Stringing	22.19	28.55	318.36	2.08	3.49	2.52	2.36
Testing	7.67	2.68	119.40	0.30	1.47	0.34	0.00
2011 Maximum Day Totals	**22.19**	**66.16**	**318.36**	**3.74**	**12.82**	**7.56**	**6.93**

* Average Daily Emissions For 2011, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that the site preparation and tower foundation phases would overlap, but that all other phases would follow sequentially with no overlaps.
Source: Tetra Tech analyses

Table 4.2-68
Summary of 2012 Daily On-Site Construction Emissions for Gen-Tie Line A-2

Construction Phase	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Site Cleanup	0.19	1.49	1.18	0.06	0.81	0.24	0.11
2012 Maximum Day Totals	**0.19**	**1.49**	**1.18**	**0.06**	**0.81**	**0.24**	**0.11**

* Average Daily Emissions For 2012, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that the site preparation and tower foundation phases would overlap, but that all other phases would follow sequentially with no overlaps.
Source: Tetra Tech analyses

Criteria Pollutant Emissions from Construction-Related Vehicle Traffic for GT-A-2. Emissions from construction-related traffic for GT-A-2 were evaluated using the same procedures as those discussed previously for GT-A-1 under Alternative 1. Table 4.2-69 summarizes annual vehicle trips used for the analysis of construction-related vehicle emissions for GT-A-2 under Alternative 3.

Table 4.2-69
Construction-Related Vehicle Trips for Gen-Tie Line A-2

Year	Vehicle Trip Category	Annual 1-Way Trips	Average Daily 1-Way Trips	Mean 1-Way Trip Distance, miles	Annual VMT	Average Daily VMT
2011	Heavy-Heavy Trucks	1,116	6.3	75	83,700	476
2011	Personal Vehicle Commute	16,928	184.0	83	2,278,184	12,944
2012	Heavy-Heavy Trucks	4	0.2	75	300	14
2012	Personal Vehicle Commute	98	14.0	83	24,402	1,162

Vehicle travel calculations were performed by construction phase within each year. Different construction phases would have different durations. The overall total number of work days per year was not used in the calculations.
Source: Tetra Tech analyses

Annual and maximum day emissions associated with construction-related vehicle trips for GT-A-2 are summarized in Table 4.2-70 and Table 4.2-71, respectively.

Table 4.2-70
Annual Emissions from Construction-Related Vehicle Traffic, Gen-Tie Line A-2

Traffic Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Emissions							
Construction Trucks	0.06	1.09	0.25	0.00	0.12	0.06	0.05
Personal Vehicle Commute	0.52	0.83	7.99	0.01	1.95	0.37	0.09
2011 Total	**0.58**	**1.91**	**8.25**	**0.01**	**2.07**	**0.42**	**0.14**
2012 Emissions							
Construction Trucks	0.000	0.002	0.000	0.000	0.000	0.000	0.000
Personal Vehicle Commute	0.005	0.008	0.081	0.000	0.021	0.004	0.001
2012 Total	**0.005**	**0.010**	**0.082**	**0.000**	**0.021**	**0.004**	**0.001**

* Annual Emissions, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-71
Maximum Day Emissions from Construction-Related Vehicle Traffic, Gen-Tie Line A-2

Traffic Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Emissions							
Construction Trucks	0.79	14.04	3.29	0.02	1.55	0.72	0.67
Personal Vehicle Commute	6.61	10.59	102.50	0.14	25.04	4.73	1.18
2011 Total	**7.39**	**24.63**	**105.79**	**0.16**	**26.59**	**5.45**	**1.85**
2012 Emissions							
Construction Trucks	0.00	0.20	0.04	0.00	0.03	0.01	0.01
Personal Vehicle Commute	0.51	0.78	7.76	0.01	1.99	0.38	0.09
2012 Total	**0.51**	**0.99**	**7.80**	**0.01**	**2.02**	**0.38**	**0.10**

* Maximum Day Emissions, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Analysis assumes that all phases overlap at some point during a construction year due to different activities occurring on multiple subareas.
Source: Tetra Tech analyses

Hazardous Air Pollutant Emissions. The primary hazardous air pollutant emission associated with construction and operation of GT-A-2 would be diesel particulate matter emissions from construction equipment. Those emissions have been quantified in the construction emissions tables presented above. Small quantities of other hazardous air pollutants would be associated with gasoline-fueled vehicles also used during construction. There would be few operational sources of hazardous air pollutant emissions other than limited and infrequent on-site vehicle traffic for periodic line inspection and necessary maintenance activities. The quantities of hazardous pollutant emissions associated with transmission line construction and operation are expected to be too small to pose an adverse health risk to the nearest residences.

Changes in Night Sky Visibility due to Project-Related Fugitive Dust. Fugitive dust emissions during construction of GT-A-2 would occur primarily during daytime hours. Airborne dust generated from the site would be widely dispersed and greatly reduced in concentration by nighttime hours. The Gen-Tie Line corridor would not be a significant source of dust from wind erosion. Consequently, construction of GT-A-2 would not produce significant dust-related changes in night sky visibility.

Red Bluff Substation A

The impacts resulting from constructing Red Bluff Substation A would be the same as those discussed under Alternative 1.

Summary of Construction Impacts for Alternative 3

Construction activities and associated vehicle traffic under Alternative 3 would generate emissions of criteria pollutants and hazardous air pollutants over a period of approximately 26 months. Construction-related emissions generally would be limited to daytime hours on weekdays, and would have little effect on night sky visibility conditions. No odor problems would be expected as a result of construction-related activity or vehicle traffic.

Operation and Maintenance

Solar Farm Layout C

Criteria Pollutant Emissions from Facility Operations. Alternative 3 would have limited operational emissions at the Solar Farm site. There would be no emissions associated with operation of the Solar Farm equipment. With only 10 to 15 on-site Solar Farm employees and limited requirements for material deliveries, emissions from operational vehicle traffic (employee commutes, delivery vehicles, and on-site vehicle use) would be low (less than six pounds per day for nitrogen oxide emissions and less than four pounds per day of PM_{10} emissions). Emissions associated with vehicle travel to the on-site visitor center also would be limited. Small amounts of volatile organic compounds would be released any time buildings or equipment enclosures need to be repainted. Small amounts of organic compounds and perhaps other pollutants would be released from the use of janitorial materials and other equipment maintenance materials.

Net Change in Wind Erosion from Solar Farm Layout C. Changes in wind erosion conditions for SF-C under Alternative 3 have been evaluated using a detailed spreadsheet model as discussed under Alternative 1. Under SF-C, the developed site would have 0.8 percent of the area covered by gravel roads with a dust suppressant treatment; 0.4 percent of the area covered by building, equipment pads, power poles, and similar structures; and 34.1 percent of the area covered by solar panels. The remaining 64.7 percent of the Solar Farm site would be open ground that has been treated with a biodegradable dust suppressant. Vegetation would be allowed to re-establish on this open ground, but the rate of vegetation re-establishment is expected to be slow. The combined "vegetation cover equivalence" for SF-C conditions was 24.7 percent. The wind erosion reduction provided by this equivalent vegetation cover varies with wind speed, ranging from a 90 percent control factor at a wind speed of 20 mph to a 72.8 percent control factor at a wind speed of 40 mph. Appendix D-4 provides additional information regarding the wind erosion analyses.

Table 4.2-72 summarizes the results of the wind erosion analysis for Solar Farm Layout C.

Table 4.2-72
Summary of Wind Erosion Conditions for Solar Farm Layout C

Parameters	Per-Acre Conditions	Total Site Conditions
Site Acres	NA	3,045
Barren Ground PM10 Emissions, Tons per Year	0.193	586.8
Natural Condition PM10 Emissions, Tons per Year	0.018	55.9
Solar Farm Condition PM10 Emissions, Tons per Year	0.025	77.2
Net Change in PM10 Emissions, Solar Farm versus Natural Conditions, Tons per Year	0.07	21.2
Barren Ground PM10 Emissions, Average Pounds per Day	1.056	3.215.2
Natural Condition PM10 Emissions, Average Pounds per Day	0.101	306.5
Solar Farm Condition PM10 Emissions, Average Pounds per Day	0.139	422.8
Net Change in PM10 Emissions, Solar Farm versus Natural Conditions, Average Pounds per Day	0.038	116.3

Note: The net per acre change in wind erosion conditions (solar farm versus natural conditions) amounts to only 0.61 ounces (17.24 grams) per acre per day, a value that would not be detectable by visual observation and probably would not be detectable by instrumental monitoring.
Source: Tetra Tech analyses

Operation of SF-C under Alternative 3 would result in an indirect air quality impact from altered wind erosion conditions at the Solar Farm site. As noted in Table 4.2-72 above, the change in ground cover conditions is expected to increase the wind erosion susceptibility of the site by a small amount. On a per-acre basis, this change would be quite small, amounting to only 0.139 pounds of PM10 per acre per day (less than one ounce per acre per day). Such a small change in wind erosion conditions would not be detectable by visual observation, and probably would not be detectable by instrumental monitoring equipment. When aggregated over the entire 3,045-acre site, the total net increase in PM10 emissions from wind erosion would average about 116 pounds per day.

Compliance with Air Quality Plans and Regulatory Requirements. SF-C would not conflict with any adopted air quality management plan and is expected to be in compliance with all local, state, and federal regulatory requirements. Most equipment used during construction of the Solar Farm would be mobile equipment exempt from regulation as stationary sources. Other equipment such as portable generators and air compressors, would most likely be registered under the CARB statewide portable equipment registration program, and thus would be exempt from SCAQMD regulation. The power screeners used during construction would either be provided directly by construction contractors or would be rented equipment items. In either case, that equipment would most likely be registered under the CARB statewide portable equipment registration program or would be operating under the owner's existing SCAQMD permits. In addition, construction equipment would be expected to operate in compliance with state regulations governing unnecessary idling of diesel engine equipment (CARB 2008a, 2008d). As noted in the Air Resources section of Chapter 3, the applicant would comply with various SCAQMD rules and regulations, including Rule 403 (fugitive dust control), Rule 1113 (architectural coatings), Rule 442 (usage of solvents), and Rule 1171 (solvent cleaning operations).

Because eastern Riverside County has no federal nonattainment or maintenance designations, federal agency actions in eastern Riverside County are not required to conduct formal CAA conformity reviews.

Gen-Tie Line A-2

Criteria Pollutant Emissions from Facility Operations. Operational emissions for GT-A-2 would be minimal, resulting from periodic line inspections and any necessary maintenance activity. Assuming two line inspections and one maintenance event per year, operational activities would typically produce maximum daily emissions of less than 2.5 pounds of nitrogen oxide and less than 0.7 pounds of PM_{10}.

Net Change in Wind Erosion from the Project Site. No quantitative analysis of wind erosion conditions has been conducted for GT-A-2 since the area of disturbance is relatively narrow linear corridor with adjacent undisturbed areas providing at least partial shielding from wind erosion. Vegetation within the disturbance area would be cleared only where necessary for laydown and staging areas, tower assembly areas, and other localized work areas.

Compliance with Air Quality Plans and Regulatory Requirements. GT- A-2 would not conflict with any adopted air quality management plan and is expected to be in compliance with all local, state, and federal regulatory requirements. Most equipment used during project construction of GT-A-2 would be mobile equipment exempt from regulation as stationary sources. Other equipment such as portable generators and air compressors, would most likely be registered under the CARB statewide portable equipment registration program, and thus would be exempt from SCAQMD regulation. In addition, construction equipment would be expected to operate in compliance with state regulations governing unnecessary idling of diesel engine equipment (CARB 2008a, 2008d). As noted in the Air Resources section of Chapter 3, the applicant would comply with various SCAQMD rules and regulations, including Rule 403 (fugitive dust control), Rule 1113 (architectural coatings), Rule 442 (usage of solvents), and Rule 1171 (solvent cleaning operations).

Because eastern Riverside County has no federal nonattainment or maintenance designations, federal agency actions in eastern Riverside County are not required to conduct formal Clean Air Act conformity reviews.

Emissions from Corona Discharge. Electrical transmission lines are designed to minimize corona discharge effects, since corona discharge represents a loss of transmitted energy. Corona discharge occurs along high voltage transmission lines primarily during rainstorm events. Ionization of air during corona discharge events can result in chemical reactions that generate small quantities of ozone and even smaller quantities of nitrogen oxides. The quantities of ozone and nitrogen oxides produced by corona discharge effects are too small to have ambient air quality effects. Corona discharge generally is not an issue with transmission lines rated at 230 kV or less (PG&E 2002).

Odors. Vehicle emissions and fugitive dust represent the primary air pollutants associated with GT-A-2. Because these emissions would be minimal, they would not be considered adverse odor sources. These emission sources are not considered significant odor sources. Corona discharge effects along high voltage transmission lines during rainstorms can generate small quantities of ozone, which has a pungent odor. Corona discharge only occurs during rainstorms, and any resulting ozone odor generally is not noticeable beyond the transmission line right of way. In addition, stratospheric ozone transported to ground level by air turbulence is commonly noticed during thunderstorms. It is difficult to distinguish ozone generated by corona discharge from stratospheric ozone that has been entrained in thunderstorms and carried by vertical turbulence to ground level.

Red Bluff Substation A

The impacts resulting from operating and maintaining Red Bluff Substation A under Alternative 3 would be the same as those discussed for Red Bluff Substation A under Alternative 1.

Summary of Operation and Maintenance Impacts for Alternative 3

Operation and maintenance activities and associated vehicle traffic under Alternative 3 would generate limited amounts of emissions of criteria pollutants and hazardous air pollutants for the duration of Project operations. Changes in ground cover conditions would result in limited increases in wind erosion potential for the Solar Farm site and Gen-Tie Line corridor, but not at the Red Bluff Substation site. Alternative 3 would not conflict with any air quality management plan, and would be expected to comply with federal, state, and SCAQMD regulatory requirements. Operation and maintenance conditions for Alternative 3 are not expected to create any air quality issues related to corona discharge or odors.

Decommissioning

Solar Farm Layout C

Decommissioning of the Solar Farm 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. Because decommissioning would occur at least 30 years in the future, it is likely that equipment engine technology and fuels would be different from current technology and fuels. Consequently, it is not possible to provide reliable estimates of equipment emissions from decommissioning activities.

Gen-Tie Line A-2

Decommissioning of GT-A-2 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. Most of the material removed during decommissioning would likely be recycled. Equipment used for decommissioning would generally be similar to that used for construction. Because decommissioning would occur at least 30 years in the future, it is likely that equipment engine technology and fuels would be different from current technology and fuels. Consequently, it is not possible to provide reliable estimates of equipment emissions from decommissioning activities.

Red Bluff Substation A

The impacts resulting from decommissioning Red Bluff Substation A would be the same as those discussed under Alternative 1.

Summary of Decommissioning Impacts for Alternative 3

Air quality impacts of facility decommissioning would be generally similar in nature to those of facility construction, but emission quantities would likely be less than those generated by construction activities. Equipment engine emissions, in particular, might be considerably less than those from construction activity due to future changes in engine and fuel technology. Decommissioning activities would not require the extent of vegetation clearing and site grading associated with facility construction.

Summary of Combined Impacts for Alternative 3

The preceding analyses have identified impacts associated with individual components of Alternative 3 (Solar Farm Layout C, GT-A-2, and Red Bluff Substation A). The following discussion provides a summary of air quality impacts reflecting the combined effects of all components of Alternative 3.

Criteria Pollutant Emissions from Overall Construction Activity. Overall construction activity for Alternative 3 would include on-site construction activities and construction-related vehicle traffic for Solar Farm Layout C, GT-A-2, and Red Bluff Substation A. Annual and maximum day emissions associated with overall construction activity for Alternative 3 are summarized in Table 4.2-73 and Table 4.2-74, respectively.

Table 4.2-73
Annual Emissions from Combined Construction Activity for Alternative 3

Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Construction Activity							
Solar Farm C	7.89	50.57	71.92	2.02	14.61	5.56	3.97
Transmission Line A-2	1.36	3.97	18.36	0.14	2.40	0.64	0.34
Red Bluff Substation A	0.45	2.55	4.62	0.14	1.25	0.40	0.26
2011 Total	**9.71**	**57.09**	**94.90**	**2.30**	**18.26**	**6.60**	**4.57**
2012 Construction Activity							
Solar Farm C	9.10	55.99	79.33	1.98	16.53	6.13	4.28
Transmission Line A-2	0.01	0.03	0.09	0.00	0.03	0.01	0.00
Red Bluff Substation A	1.27	6.76	14.93	0.11	3.77	0.98	0.42
2012 Total	**10.38**	**62.78**	**94.36**	**2.09**	**20.32**	**7.12**	**4.71**
2013 Construction Activity							
Solar Farm C	0.10	0.57	0.91	0.02	0.54	0.14	0.05
Red Bluff Substation A	0.35	3.18	2.83	0.03	0.73	0.25	0.19
2013 Total	**0.45**	**3.75**	**3.74**	**0.05**	**1.28**	**0.39**	**0.23**

* Annual Emissions, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-74
Daily Emissions from Combined Construction Activity for Alternative 3

Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
2011 Construction Activity							
Solar Farm C	122.5	770.2	1,099.3	31.2	217.2	84.0	60.1
Transmission Line A-2	29.6	90.8	424.2	3.9	39.4	13.0	8.8
Red Bluff Substation A	6.3	43.2	60.3	2.7	17.4	6.5	4.6
2011 Total	**158.4**	**904.3**	**1,583.7**	**37.8**	**274.0**	**103.5**	**73.5**
2012 Construction Activity							
Solar Farm C	98.5	607.4	847.2	23.9	177.1	68.1	48.6
Transmission Line A-2	0.7	2.5	9.0	0.1	2.8	0.6	0.2
Red Bluff Substation A	12.4	86.7	147.1	2.2	48.8	11.4	6.3
2012 Total	**111.7**	**696.5**	**1,003.3**	**26.1**	**228.7**	**80.1**	**55.0**
2013 Construction Activity							
Solar Farm C	9.2	51.5	75.9	2.0	52.6	13.4	2.6
Red Bluff Substation A	8.2	77.1	65.7	1.1	17.4	6.4	5.1
2013 Total	**17.4**	**128.6**	**141.6**	**3.1**	**70.0**	**19.9**	**7.7**

* Daily Emissions, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Hazardous Air Pollutant Emissions. The primary hazardous air pollutant emission associated with the different components of Alternative 3 would be diesel particulate matter emissions from construction equipment. Those emissions have been quantified in the construction emissions tables presented above. Small quantities of other hazardous air pollutants would be associated with gasoline-fueled vehicles also operating on-site during Solar Farm construction. The location of hazardous pollutant emissions from construction equipment operation would vary across the facility construction sites over the construction period, and thus would not be in a fixed location for long periods of time. There would be few sources of hazardous air pollutant emissions other than limited on-site vehicle traffic at the Solar Farm site during facility operation. There are only a few rural residences within one mile of the Solar Farm site, and only one rural residence within ¼-mile of boundary of the proposed Solar Farm. There are no sensitive receptors along the alignment for Transmission Line A-2. The absence of nearby sensitive receptors and the limited duration of construction activity at any one location along the transmission line corridor would minimize health risks from construction equipment engine exhaust. There are no sensitive receptors near Red Bluff Substation A.

Changes in Night Sky Visibility due to Project-Related Fugitive Dust. Fugitive dust emissions during construction of project facilities would occur primarily during daytime hours. The Applicant would implement a dust control plan including the use of dust suppressants during facility construction. Airborne dust generated from construction sites would be widely dispersed and greatly reduced in concentration by nighttime hours. Construction activity would be phased across the Solar Farm site over a 26-month period, limiting the amount of disturbed area that could produce fugitive dust from

wind erosion at night. As noted previously, development of the Solar Farm site would result in only a small increase in wind erosion potential compared to natural conditions. Consequently, the combined effects of facility components for Alternative 3 would not produce significant dust-related changes in night sky visibility.

Criteria Pollutant Emissions from Facility Operations. Alternative 3 would have limited operational emissions. Most operational emissions would involve vehicle travel by Solar Farm employees or other employees conducting periodic inspections or maintenance activity along the Gen-Tie line or at the Red Bluff substation. Annual and daily operational emissions for Alternative 3 are summarized in Table 4.2-75 and Table 4.2-76, respectively.

As indicated in Table 4.2-75 and Table 4.2-76, annual and daily traffic associated with facility operations would generate only limited quantities of emissions. The on-site visitor's center at the Solar Farm is not expected to draw a high volume of visitor traffic. Consequently, emissions associated with vehicle travel to the on-site visitor center also would be limited. Small amounts of volatile organic compounds would be released any time buildings or equipment enclosures need to be repainted. Small amounts of organic compounds and perhaps other pollutants would be released from the use of janitorial materials and other equipment maintenance materials.

Table 4.2-75
Annual Emissions from Combined Operational Traffic for Alternative 3

Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Solar Farm C	0.15	1.09	2.13	0.01	0.67	0.14	0.05
Transmission Line A-2	0.0001	0.0012	0.0013	0.0000	0.0005	0.0001	0.0000
Red Bluff Substation A	0.0001	0.0012	0.0013	0.0000	0.0005	0.0001	0.0000
Total	**0.15**	**1.09**	**2.14**	**0.01**	**0.67**	**0.14**	**0.05**

* Annual Emissions, Tons per Year
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Table 4.2-76
Daily Emissions from Combined Operational Traffic for Alternative 3

Component	ROG*	NOx*	CO*	SOx*	PM10*	PM2.5*	DPM*
Solar Farm C	0.80	5.98	11.70	0.03	3.65	0.77	0.27
Transmission Line A-2	0.11	2.28	1.53	0.01	0.63	0.15	0.07
Red Bluff Substation A	0.11	2.28	1.53	0.01	0.63	0.15	0.07
Total	**1.03**	**10.53**	**14.76**	**0.04**	**4.91**	**1.07**	**0.42**

* Daily Emissions, Pounds per Day
ROG = reactive organic compounds (ozone and particulate matter precursors)
NOx = nitrogen oxides (ozone and particulate matter precursors)
CO = carbon monoxide
SOx = sulfur oxides
PM10 = inhalable particulate matter, particles generally smaller than 50 microns
PM2.5 = fine particulate matter, particles generally smaller than 6 microns
DPM = diesel particulate matter (carcinogen)
Source: Tetra Tech analyses

Net Change in Wind Erosion from the Project Site. Changes in wind erosion conditions have been evaluated using procedures discussed previously for Solar Farm Layout B. Development of Solar Farm Layout C would replace natural vegetation and ground surface conditions with cleared land, solar panel arrays, buildings, equipment pads, gravel roads, and related features. There would be a change in wind erosion conditions associated with these land surface changes. As discussed previously, construction of GT-A-2 and Red Bluff Substation A would have minimal effects on wind erosion conditions in the Project area. Thus, the net change in wind erosion conditions for the combined components of Alternative 3 would be the same as presented previously in Table 4.2-31.

The change in ground cover conditions for Solar Farm Layout C is expected to increase the wind erosion susceptibility of the site by a small amount. On a per-acre basis, this change would be quite small, amounting to only 0.139 pounds of PM10 per acre per day (less than one ounce per acre per day). Such a small change in wind erosion conditions would not be detectable by visual observation, and probably would not be detectable by instrumental monitoring equipment. When aggregated over the entire 3,045-acre site, the total net increase in PM10 emissions from wind erosion would average about 116 pounds per day.

Compliance with Air Quality Plans and Regulatory Requirements. Alternative 3 would not conflict with any adopted air quality management plan and is expected to be in compliance with all local, state, and federal regulatory requirements. Most equipment used during Project construction of the various project components would be mobile equipment exempt from regulation as stationary sources. Other equipment such as portable generators and air compressors, would most likely be registered under the CARB statewide portable equipment registration program, and thus would be exempt from SCAQMD regulation. The power screeners used during Solar Farm construction would either be provided directly by construction contractors or would be -rented equipment items. In either case, that equipment would most likely be registered under the CARB statewide portable equipment registration program or would be operating under the owner's existing SCAQMD permits. In addition, construction equipment would be expected to operate in compliance with state regulations governing unnecessary idling of diesel engine equipment (CARB 2008a, 2008d). As noted in the Air Quality section of Chapter 3, the applicant and SCE would need to comply with various SCAQMD rules and regulations, including Rule 403 (fugitive dust control), Rule 1113 (architectural coatings), Rule 442 (usage of solvents), and Rule 1171 (solvent cleaning operations).

Because eastern Riverside County has no federal nonattainment or maintenance designations, federal agency actions in eastern Riverside County are not required to conduct formal CAA conformity reviews.

Emissions from Corona Discharge. Electrical transmission lines and substation equipment are designed to minimize corona discharge effects, since corona discharge represents a loss of transmitted energy. Corona discharge occurs along high voltage transmission lines and at substation equipment primarily during rainstorm events. Ionization of air during corona discharge events can result in chemical reactions that generate small quantities of ozone and even smaller quantities of nitrogen oxides. The quantities of ozone and nitrogen oxides produced by corona discharge effects are too small to have ambient air quality effects (PG&E 2002).

Odors. Vehicle emissions and fugitive dust represent the primary air pollutants associated with the combined facilities for Alternative 3. These emission sources are not considered significant odor sources. Corona discharge effects at high voltage substation equipment during rainstorms can generate small quantities of ozone, which has a pungent odor. Corona discharge only occurs during rainstorms, and any resulting ozone odor generally is not noticeable beyond the substation site. In addition, stratospheric ozone transported to ground level by air turbulence is commonly noticed during thunderstorms. It is difficult to distinguish ozone generated by corona discharge from stratospheric ozone that has been entrained in thunderstorms and carried by vertical turbulence to ground level.

Applicant Measures and Mitigation Measures

Applicant measures and mitigation measures discussed under Alternative 1 would be applicable to Alternative 3, also.

CEQA Significance Determination

Solar Farm Layout C

The CEQA significance determinations for SF-C under Alternative 3 are the same as those discussed under Alternative 1.

Gen-Tie Line A-2

The CEQA significance determinations for GT-A-2 under Alternative 3 are the same as those discussed for GT-A-1 under Alternative 1.

Red Bluff Substation A

The CEQA significance determinations for Red Bluff Substation A under Alternative 3 are the same as those discussed for Red Bluff Substation A under Alternative 1.

Unavoidable Adverse Effects

On-site construction activities and construction-related traffic for Solar Farm Layout C would produce ozone precursor emissions (reactive organic compounds and nitrogen oxides) and particulate matter emissions (PM_{10} and $PM_{2.5}$) that exceed SCAQMD regional emissions significance thresholds. Mitigation measures MM-AIR-1 and MM-AIR-2 would reduce these emissions somewhat, but would not reduce emissions to a level less than the SCAQMD regional emissions significance thresholds. Consequently, construction-related emissions for Solar Farm Layout C would be an unavoidable significant air quality impact under Alternative 1.

4.2.6 Alternative 4—No Issuance of a Right-of-Way Grant and No Land Use Plan Amendment (No Action)

Under Alternative 4, the proposed Desert Sunlight Solar Farm Project would not be approved by the BLM and BLM would not amend the CDCA Plan. As a result, none of the project components would be constructed, and the 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 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. As a result, none of the construction or operation air emissions from the proposed Project would occur and none of the benefits of the proposed Project in displacing fossil fuel fired generation and reducing associated pollutant emissions would occur. However, the land on which the Project is proposed would become available to other uses that are consistent with BLM's land use plan, including another solar project requiring a land use plan amendment. In addition, in the absence of this project, other renewable energy projects may be constructed to meet State and Federal mandates, and those projects would have similar impacts in other locations.

4.2.7 Alternative 5—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Unsuitable for Solar Energy Development (No Action with Plan Amendment)

Under Alternative 5, the proposed Project 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, no 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 the CDCA Plan would be amended to make the area unavailable for future solar energy development, 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. As a result, the air quality of the site is not expected to change noticeably from existing conditions and, as such, this No Action Alternative would not result in the air quality impacts expected under the proposed Project nor would it result in the air quality benefits from the proposed Project. However, in the absence of this project, other renewable energy projects may be constructed to meet State and Federal mandates, and those projects would have similar impacts in other locations.

4.2.8 Alternative 6—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Suitable for Solar Development (No Action with Plan Amendment)

Under Alternative 6, the proposed Project would not be approved by the BLM and the BLM would amend the CDCA Plan to allow for other solar projects on the site. As a result, it is possible that another solar energy project could be constructed on the project site.

Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. If that were to happen, air pollutant emissions would result from the construction and operation of the solar technology and would likely be similar to the air quality impacts from the proposed Project. Different solar technologies require different amounts of grading and maintenance; however, it is expected that all the technologies would require some grading and maintenance. The benefits of the Proposed Project in displacing fossil fuel fired generation and reducing associated pollutant emissions could occur with a different solar technology at this site and therefore with this alternative. As such, this No Action Alternative could result in air quality impacts and benefits generally similar to the impacts under the Proposed Project.

4.2.9 Cumulative Impacts

Cumulative air quality impacts would occur when multiple projects affect the same geographic areas at the same time or when sequential projects extend the duration of air quality impacts on a given area over a longer period of time. The factors of geographic extent and time frame for ambient air quality impacts and climate change impacts are discussed below.

Geographic Extent

The air quality impacts of the project alternatives stem primarily from temporary construction activities. Ozone precursor emissions associated with engine exhaust from construction equipment and construction-related traffic would contribute to area-wide and regional air quality conditions. Direct particulate matter emissions, such as fugitive dust emissions from construction activities, generally would have a more localized impact, with the most noticeable impacts occurring within one-half mile or less of active construction sites. Secondary particulate matter, formed by atmospheric chemical reactions involving precursor emissions of organic compounds, nitrogen oxides, and sulfur oxides, would have an area-wide and regional extent similar to ozone.

Time Frame

Criteria pollutant emissions associated with construction activities or vehicle travel do not persist in the atmosphere for long periods of time. Ozone precursor emissions are chemically reactive, and have typical atmospheric lifetimes measured in hours, days, or weeks. The atmospheric lifetime of suspended particulate matter depends on particle size and composition. Most fugitive dust particles have typical atmospheric lifetimes measured in hours or days, while small particles can remain in the atmosphere for a few days to a few weeks. Emissions from large industrial facilities can be injected high into the atmosphere, resulting in longer atmospheric residence times for some pollutants from these sources. Actual changes in ambient air quality generally are determined by pollutants that have been emitted within recent days or weeks. Most emissions that were released earlier than that would no longer be affecting actual ambient air quality conditions for criteria pollutants.

Ambient air quality standards are set for time frames that include one-hour, three-hour, eight-hour, 24-hour, 30-day averages, calendar quarter averages, and yearly averages. Violations of some ambient air quality standards are based on statistical analyses of data compiled over a period of three consecutive years. Thus, there is a regulatory context in terms of attainment or nonattainment designations that is generally no more than three years beyond the time frame for emissions release.

Construction activities for the project alternatives would be limited to 2011, 2012, and the first half of 2013. Criteria pollutant emissions from construction activity during those years would not persist in the atmosphere beyond the middle of 2013, and air quality conditions resulting from those emissions would not be considered in attainment or nonattainment designations after 2015.

Existing Cumulative Conditions

Current ambient air quality conditions represent the cumulative effect of pollutant emissions on a local and regional geographic scale for recent time periods. Eastern Riverside County meets all federal ambient air quality standards, but occasionally exceeds state ambient air quality standards for ozone and PM_{10}. The limited amount of ozone monitoring data from Blythe does not show any distinct trends in ozone levels or the frequency with which state ozone standards are exceeded. In a more general context, most Southern California monitoring stations show a trend of gradually improving air quality in terms of ozone, with a trend toward lower peak ozone levels and fewer days exceeding federal and state ozone standards. Historical data for PM_{10} levels often shows little distinct trend toward improving or declining air quality.

Existing projects and facilities listed in Table 3.18-2 are too far from the proposed Solar Farm area to create cumulative fugitive dust impacts in combination with any of the Solar Farm alternatives. The alternative transmission line corridors all cross I-10, and the Red Bluff Substation alternatives are near I-10. Traffic on I-10, however, does not generate enough fugitive dust to lead to significant cumulative fugitive dust problems in combination with transmission line or substation construction activities. The region of interest for precursor emissions that can react to form ozone and secondary particulate matter extends for perhaps 30 to 40 miles from the Solar Farm area. Thus, most of the projects listed in Table 3.18-2 can be considered close enough to the proposed project to have the potential for cumulative impacts related to ozone and secondary particulate matter. But traffic on I-10, and the Blythe energy project are the only projects in Table 3.18-2 that are meaningful emission sources for precursors of ozone and secondary particulate matter. The other projects listed in Table 3.18-2 do not generate sufficient emissions of ozone or particulate matter precursors to result in the potential for significant cumulative air quality impacts in combination with the various project alternatives. Additional considerations regarding cumulative air quality impacts for the various project alternatives in combination with existing conditions are presented below.

Action Alternatives (Alternatives 1, 2, and 3)

Alternatives 1, 2, and 3 would have short term unavoidable adverse air quality impacts associated with facility construction. The air quality impacts from construction would not last long enough to alter current federal or state attainment status designations for the project area. The long-term change in wind erosion conditions at the Solar Farm site could be mitigated to a less than significant level. Existing air quality conditions in the project area meet all federal ambient air quality standards, but occasionally exceed state air quality standards for ozone and PM10. These conditions would not be changed by the emissions associated with project construction. Thus, there would be no significant cumulative air quality impacts from Alternatives 1, 2, or 3 in combination with existing cumulative air quality conditions.

No Action Alternatives (Alternatives 4, 5, and 6)

There would be no cumulative air quality impacts under Alternatives 4, 5 or 6 because there would be no right-of-way grant for development of the Solar Farm area and associated facilities. Any future proposals for use of the site would be subject to separate environmental analysis.

Future Foreseeable Projects

Foreseeable Projects in the Project Area

Most of the projects listed in Table 3.18-3 are too far from the proposed Solar Farm site to generate cumulative fugitive dust problems in combination with the Solar Farm alternatives, transmission line alternatives, or Red Bluff substation alternatives. The Eagle Mountain Pumped Storage Project and the Eagle Mountain Landfill Project are unlikely to start construction during the construction period for the various Solar Farm alternatives. GT-A-1 and GT-A-2 would pass through or near the Chuckwalla Solar I project site. In addition, the Eagle Mountain Soleil Project is close enough to the Desert Sunlight solar is adjacent to the south side of the Desert Sunlight Solar Farm site. Thus, only the Chuckwalla Solar I and Eagle Mountain Soleil projects have the potential for cumulative fugitive dust impacts in combination with the proposed Desert Sunlight project.

The region of interest for precursor emissions that can react to form ozone and secondary particulate matter extends for perhaps 30 to 40 miles from the Solar Farm area. Thus, most of the projects listed in Table 3.18-3 can be considered close enough to the proposed Project to have the potential for cumulative impacts related to ozone and secondary particulate matter. But many of the smaller projects listed in Table 3.18-3, especially urban development projects in the Blythe area, are unlikely to generate enough precursor emissions for ozone and secondary particulate matter to create actual cumulative impacts in combination with the Desert Sunlight project. The same consideration would hold true for most of the smaller renewable energy projects listed in Table 3.18-3. The proposed Desert Sunlight project would not be a meaningful source of precursor emissions for ozone or secondary particulate matter during its operational lifetime. Thus, the time frame for potential cumulative air quality impacts related to precursors of ozone and secondary particulate matter is restricted to the construction period for the Desert Sunlight project. The timing for construction of most projects listed in Table 3.18-3 is not known. The Genesis and Palen solar energy projects are planned with construction time frames that overlap that of the Desert Sunlight project. In addition, the transmission line projects (Devers-Palo Verde 2, Desert Southwest, and Green Energy transmission lines) might have construction periods that partially overlap with the Desert Sunlight project. It is unclear whether or not other projects listed in Table 3.18-3 would have construction periods that overlap with the Desert Sunlight project. Additional considerations regarding cumulative air quality impacts for the various project alternatives in combination with future foreseeable projects are presented below.

Action Alternatives (Alternatives 1, 2, and 3).

Alternatives 1, 2, and 3 would have short term unavoidable adverse air quality impacts associated with facility construction. The air quality impacts from construction would not last long enough to alter current federal or state attainment status designations for the project area. The timing for approval and construction of the Chuckwalla Solar I and Eagle Mountain Soleil projects is not known, but could potentially overlap with part of the construction period for the Desert Sunlight project. Consequently, there is the potential for short-term significant cumulative fugitive dust impacts from the Desert Sunlight project in combination with either or both of these other solar energy projects. Because the timing for construction of at least some of the projects listed in Table 3.18-3 would overlap with construction of the Desert Sunlight project, there also would be short term cumulative air quality impacts in terms of precursor emissions for ozone and secondary particulate matter.

No Action Alternatives (Alternatives 4, 5, and 6).

There would be no cumulative air quality impacts under Alternatives 4, 5 or 6 because there would be no right-of-way grant for development of the Solar Farm area and associated facilities. Any future proposals for use of the site would be subject to separate environmental analysis.

Foreseeable Renewable Projects in the California Desert

The foreseeable renewable projects in the California desert as listed in Table 3.18-1 would generally be too far from the Desert Sunlight project to have any cumulative air quality impacts in combination with the Desert Sunlight project.

Overall Conclusions

The alternative Desert Sunlight projects, in combination with past, present, and foreseeable future projects, would have adverse cumulative air quality impacts related to ozone and secondary particulate matter precursor emissions during the 26-month time frame for construction of the Desert Sunlight project. The alternative Desert Sunlight projects would not contribute to adverse long-term cumulative air quality impacts.

The alternative Desert Sunlight projects represent a trade-off between direct short-term unavoidable adverse criteria pollutant emissions during facility construction and indirect long-term greenhouse gas emission reductions during project operations. Indirect climate change benefits would occur in terms of greenhouse gas emissions avoided by displacing alternative power generation sources (which include fossil fuel combustion sources) with solar energy sources. Cumulative climate change benefits would occur from combined solar and wind energy projects, each of which would provide indirect reductions in greenhouse gas emission by avoiding equivalent power generation from alternative sources that include fossil fuel combustion.

4.3 VEGETATION

4.3.1 Methodology for Analysis

A summary of the overall acreages of disturbance associated with each alternative is provided in Table 4.3-1. Acreages calculated for impacts were based on the best information available at the time of publication of the EIS for permanent disturbance areas. For the Gen-Tie Line and Red Bluff Substation A, temporary disturbance would be caused by installation of temporary access roads and staging areas. Vegetation in these areas would only be crushed by construction equipment, they would not be bladed, as described in Chapter 2, Project Description. Permanent disturbance would be caused by transmission pole and tower footprints, permanent access roads, and the other elements of the substation. Disturbance associated within the entire Solar Farm footprint were assumed to be permanent.

Table 4.3-1
Comparison of Action Alternative Features Relevant to Vegetation Impacts

Project Feature	Alternative 1	Alternative 2	Alternative 3
Solar Farm Acreage	4,245	4,245	3,045
Gen-Tie Line Temporary Disturbance Acreage	86	67	75
Gen-Tie Line Permanent Disturbance Acreage	18	11	23
Subtotal Gen-Tie Line Disturbance Acreage	104	78	98
Red Bluff Substation (and related elements) Temporary Disturbance Acreage	28	0	28
Red Bluff Substation (and related elements) Permanent Disturbance Acreage	128	91	128
Subtotal Red Bluff Substation (and related elements) Disturbance Acreage	156	91	156
Subtotal Temporary Disturbance Acreage	114	67	103
Subtotal Permanent Disturbance Acreage	4,391	4,347	3,196
Total Disturbance Acreage	4,505	4,414	3,299

Impacts are considered permanent if areas are precluded from restoration to a pre-project state in a relatively short period of time. Natural recovery rates from disturbance in desert ecosystems depend on the nature and severity of the impact. For example, creosote bushes can resprout a full canopy within five years after damage from heavy vehicle traffic (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). For the purposes of this analysis, an impact is considered temporary only if there is evidence to indicate that pre-disturbance levels of biomass, cover, density, community structure, and soil characteristics could be achieved within five years of restoration.

Tables 4.3-2 through Table 4.3-5 summarize the direct impacts of each alternative on vegetation communities, special status plant species, sensitive natural communities (desert dry wash woodland), and CDFG jurisdictional resources, respectively, as described in more detail below.

Direct impacts on vegetation are considered to include disruption, trampling, or removal of rooted vegetation resulting in a reduction in the total acres of native vegetation and actions that unequivocally cause a reduction of total numbers of plant species and/or reduction or loss of total area, diversity, vigor, structure, or function of vegetative habitat. This includes loss of suitable habitat due to surface disturbance. Direct impacts can also include decreased plant vigor or health from reduced air or water quality.

Table 4.3-2
Vegetation Communities within Each Alternative Footprint

Project Feature	Alternative 1	Alternative 2	Alternative 3
Creosote Desert Scrub	4,401	4,319	3,176
Desert Dry Wash Woodland	101	93	102
Disturbed Areas	3	2	21
Total	4,505	4,414	3,299

Note: Numbers are in acres and include permanent and temporary disturbance areas.

Table 4.3-3
Overall Summary of Impacts on Special Status Plant Species

Species	Alternative 1	Alternative 2	Alternative 3
Foxtail cactus (CNPS List 4.3)	Several (8 acres)	Several (6 acres)	Several (5 acres)
Emory's crucifixion thorn (CNPS List 2.3)	3	3	Several
Las Animas colubrina (CNPS List 2.3)	2	0	2
California ditaxis (CNPS List 2.2)	3	Several	4
Desert unicorn plant (CNPS List 4.3)	4	1	1
Slender-spined allthorn (CNPS List 2.2)	5	5	5

Note: Numbers of individuals present in the Project locations shown. Estimated acreage of distribution of foxtail cactus shown in parentheses.

Table 4.3-4
Overall Summary of Impacts on Desert Dry Wash Woodland

Vegetation Community	Alternative 1	Alternative 2	Alternative 3
Desert dry wash woodland temporary disturbance acreage	39	42	35
Desert dry wash woodland permanent disturbance acreage	62	51	67
Total (acres)	101	93	102

Table 4.3-5
Summary of Impacts on Jurisdictional Resources

Vegetation Community	Alternative 1 (acres)	Alternative 2 (acres)	Alternative 3 (acres)
Desert Dry Wash – In Creosote Desert Scrub Habitat*			
Temporary disturbance acreage	35	2	44
Permanent disturbance acreage	218	217	158
Subtotal (acres)	253	219	202
Riparian – Desert Dry Wash Woodland			
Temporary disturbance acreage	39	42	35
Permanent disturbance acreage	62	51	67
Subtotal (acres)	101	93	102
Total (acres)	**354**	**312**	**304**

Notes:
*Largely unvegetated desert dry washes found within creosote desert scrub habitat.

Indirect impacts can occur later in time or are farther removed in distance while still being reasonably foreseeable and related to the project. Potential indirect impacts include introduction of invasive species by various vectors or conditions that compete with native species and can result in habitat degradation..

An *Integrated Weed Management Plan* (Ironwood Consulting 2010b) and *Habitat Compensation Plan* (Ironwood Consulting 2010c) have been prepared for the Project to reduce impacts associated with the potential introduction of invasive plant species and the loss of vegetation communities. These draft plans are contained in Appendix H of this document. Invasive species on BLM lands will be prevented, controlled, treated, and restored through an Integrated Pest Management approach pursuant to the *Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States* (BLM 2007), and the *National Invasive Species Management Plan* (The National Invasive Species Council 2008).

4.3.2 CEQA Significance Criteria

The proposed Project would have a significant impact on vegetation if it would:

BIO-1. Have a substantial adverse effect on native vegetation communities, including direct loss of vegetation and introduction of nonnative invasive weed species;

BIO-2. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate for state or federal listing as threatened or endangered, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game (CDFG) or US Fish and Wildlife Service (USFWS);

BIO-3. 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;

BIO-4. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, riparian, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means; or

BIO-5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

4.3.3 Alternative 1 – Proposed Action

Construction

Solar Farm Layout B

Native Vegetation Communities

Clearing and grading activities for SF-B construction and infrastructure (such as access roads, staging areas, the footprint of the PV arrays, on-site substation, Visitor's Center, and O&M facility) would cause the direct loss of native vegetation within the SF-B boundaries. Vegetation communities affected would include creosote desert scrub and desert dry wash woodland. All surface disturbances would have permanent impacts. Total permanent disturbance would be approximately 4,245 acres. The creosote desert scrub community would receive the greatest impact (4,210 acres), as it is the dominant vegetation community within SF-B (Table 4.3-6). Implementation of Applicant Measure BIO-1 and Mitigation Measure BIO-1 would reduce these impacts.

Dust generated during construction could directly adversely affect offsite native vegetation communities immediately adjacent to the Project by covering stomata and reducing photosynthetic or respiratory activity. Over the proposed 26-month construction period, this could cause lowered growth rates, increased susceptibility to disease, lowered reproductive capacity, or lowered ability to compete with nonnative species. Implementation of dust control measures as discussed in Section 4.2, Air Resources, would be employed to reduce these impacts.

In addition, grading activities during construction could also have direct effects on the water quality and hydrology of desert dry washes located downstream of SF-B during rain events. Specifically, without implementation of erosion control measures, site compaction and grading activities would result in an increase in the rate and volume and sediment load in storm water runoff traveling offsite. Implementation of a Storm Water Pollution Prevention Plan (SWPPP) during construction as discussed in Section 4.17, Water Resources, would be employed to reduce these impacts.

Finally, clearing and grading activities within SF-B would disturb soil and remove vegetation. This could indirectly affect adjacent native vegetation communities by creating opportunities for nonnative invasive weed species to colonize or spread into the disturbed areas and then possibly into undisturbed areas located adjacent to SF-B (including Pinto Wash). Construction vehicles and crews could inadvertently track in clinging seeds and/or parts of noxious weeds, thus facilitating their spread. Implementation of Applicant Measure BIO-2 would reduce these impacts.

Special Status Plant Species

As stated in Section 3.3, no federally-listed, state-listed, or proposed listed plant species have been observed in the Project locations and are not expected to be affected by the Project. Clearing and grading activities to construct SF-B would cause the direct loss of three foxtail cactus (CNPS List 4.3) (with an estimated distribution of three acres), one crucifixion thorn (CNPS List 2.3), and five slender-spined allthorn (Table 4.3-7). Eight other species of cacti, protected by BLM, have been recorded in the Project locations as well (see Table 3.3-2) and would be directly impacted by the 4,245 acres of permanent disturbance caused by construction of SF-B. Although not observed during botanical surveys conducted for the Project, there is a chance that new special status species could emerge within SF-B immediately prior to construction (especially annual species). If present, these species would be directly impacted as well. Implementing Applicant Measures BIO-1 and BIO-3 through BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

As described for *Native Vegetation Communities*, dust generated during construction could also directly adversely affect foxtail cactus and other cacti species located immediately adjacent to SF-B (see Figure 3.3-3). Implementation of the dust control mitigation measures discussed in Section 4.2, Air Resources, would be employed to reduce these impacts.

Finally, clearing and grading activities within SF-B would disturb soil and remove vegetation. This could indirectly affect special status plant species by creating opportunities for nonnative invasive weed species to colonize or spread into the disturbed areas and then possibly into undisturbed areas, as described for *Native Vegetation Communities*. Implementing Applicant Measure BIO-2 would reduce these impacts.

Sensitive Natural Communities

A total of 35 acres of desert dry wash woodland would be permanently removed to construct SF-B (Table 4.3-8). Implementing Applicant Measure BIO-1 and Mitigation Measure BIO-1 would reduce these impacts.

In addition, as previously described for *Native Vegetation Communities*, grading activities during construction could also have direct effects on the water quality and hydrology of desert dry washes located downstream of SF-B during rain events. Implementation of a Storm Water Pollution Prevention Plan (SWPPP) during construction as discussed in Section 4.17, Water Resources, would be employed to reduce these impacts.

As described for *Native Vegetation Communities*, dust generated during construction could also directly adversely affect desert dry wash woodland located immediately adjacent to SF-B. Implementation of the dust control mitigation measures discussed in Section 4.2, Air Resources, would be employed to reduce these impacts. Finally, clearing and grading activities within SF-B would disturb soil and remove vegetation. This could indirectly affect desert dry wash woodland downstream and adjacent to SF-B (including Pinto Wash) by creating opportunities for nonnative invasive weed species to colonize or spread, as previously described. Implementation of Applicant Measure BIO-2 would reduce these impacts.

Jurisdictional Resources

Table 4.3-9 presents the acres of CDFG jurisdictional resources that would be temporarily and permanently disturbed as a result of construction of SF-B. A total of 191 acres of desert dry washes occurring within creosote desert scrub habitat and 35 acres of desert dry wash woodland habitat subject to CDFG's Lake and Streambed Alteration Agreement Program jurisdiction would be permanently disturbed to construct the SF-B site (for a total of 226 acres of jurisdictional resources affected). Implementation of Applicant Measure BIO-1 and Mitigation Measure BIO-1 would reduce these impacts.

No areas were found that meet the USACE technical criteria for being classified as wetlands. Areas mapped as desert dry wash occurring within creosote desert scrub habitat and desert dry wash woodland habitat did meet the technical criteria for other waters of the US due to the presence of an ordinary high water mark. However, following joint USACE/USEPA guidance resulting from relatively recent US Supreme Court decisions, these areas may be excluded from USACE jurisdiction because they are non-navigable intrastate waters, have not been used for navigation in the past, do not have a surface connection to a traditional navigable water, and have not been used and are not currently being used for interstate or foreign commerce. An official verification of this finding by the USACE is currently pending.

As described under *Sensitive Natural Communities* above, direct impacts to the water quality of jurisdictional resources located downstream of SF-B could result from construction activities due to an increase in the rate and volume and sediment load of storm water runoff traveling offsite. Implementation of a SWPPP during construction as discussed in Section 4.17, Water Resources, would be employed to reduce these impacts.

As described for *Native Vegetation Communities*, dust generated during construction could also directly adversely affect jurisdictional resources located immediately adjacent to SF-B. Implementation of the dust control mitigation measures discussed in Section 4.2, Air Resources, would be employed to reduce these impacts.

In addition, construction of SF-B would also have the potential to introduce invasive species into jurisdictional resources located downstream and adjacent to SF-B as well, as described above under the *Sensitive Natural Communities* section. Implementation of Applicant Measure BIO-2 would reduce these impacts.

Local Policies or Ordinances Protecting Biological Resources

Local open space Policy DCAP 10.1 of the Desert Center Area Plan of the County of Riverside's General Plan states the following:

> *DCAP 10.1 Encourage clustering of development for the preservation of contiguous open space.*

Because SF-B was sited to avoid pristine or biologically sensitive areas, SF-B is consistent with this policy.

Gen-Tie Line A-1

Native Vegetation Communities

A total of 53 acres of creosote desert scrub would be temporarily disturbed and a total of 12 acres of creosote desert scrub would be permanently removed to construct GT-A-1 (Table 4.3-8), for a total of 65 acres affected. Acreages of desert dry wash woodland that would be disturbed are discussed below under *Sensitive Natural Communities*. Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on native vegetation communities would be similar to those described under SF-B. However, given the linear nature of the GT-A-1 footprint, there is a greater risk that weeds could be introduced and spread over a large area. Implementing Applicant Measure BIO-2 would reduce these impacts.

Special Status Plant Species

Clearing and grading activities to construct GT-A-1 would cause the direct loss of two crucifixion thorns (CNPS List 2.3), one California ditaxis (CNPS List 2.2), and four desert unicorn plants (CNPS List 4.3) (Table 4.3-7). Eight other species of cacti have been recorded in the Project locations as well (see Table 3.3-2) and would be directly impacted by the 18 acres of permanent disturbance and 86 additional acres of temporary disturbance caused by construction of GT-A-1. As for SF-B, although not observed during botanical surveys conducted for the Project, there is a chance that new special status species could emerge within GT-A-1 immediately prior to construction (especially annual species). If present, these species would be directly impacted as well. Implementation of Applicant Measures BIO-1 and BIO-3 through BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on special status plant species would be similar to those described under SF-B. However, given the linear nature of the GT-A-1 footprint, there is a greater risk that weeds could be introduced and spread over a large area. Implementing Applicant Measure BIO-2 would reduce these impacts.

Sensitive Natural Communities

A total of 32 acres of desert dry wash woodland would be temporarily disturbed and a total of 5 acres of desert dry wash woodland would be permanently removed to construct GT-A-1 (Table 4.3-8), for a total of 37 acres affected. Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on desert dry wash woodland would be similar to those described under SF-B. However, given the linear nature of the GT-A-1 footprint, there is a greater risk that weeds could be introduced and spread over a large area. Implementing Applicant Measure BIO-2 would reduce these impacts.

Jurisdictional Resources

Table 4.3-9 presents the acres of CDFG jurisdictional resources that would be temporarily and permanently disturbed as a result of construction of GT-A-1. A total of 39 acres of CDFG jurisdictional resources would be temporarily disturbed by construction of GT-A-1 and a total of 7 acres would be permanently disturbed by construction of GT-A-1 (for a total of 46 acres of jurisdictional resources affected). Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on jurisdictional resources would be similar to those described for SF-B. However, given the linear nature of the GT-A-1 footprint, there is a greater risk that weeds could be introduced and spread over a large area. Implementing Applicant Measure BIO-2 would reduce these impacts.

Local Policies or Ordinances Protecting Biological Resources

As described for SF-B, GT-A-1 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Red Bluff Substation A

Native Vegetation Communities

A total of 21 acres of creosote desert scrub would be temporarily disturbed and a total of 105 acres of creosote desert scrub would be permanently removed to construct the Red Bluff Substation A elements (Table 4.3-6), for a total of 126 acres affected. Acreages of desert dry wash woodland that would be disturbed are discussed below under *Sensitive Natural Communities* (Table 4.3-6). Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on native vegetation communities would be similar to those described for SF-B. Implementing Applicant Measure BIO-2 would reduce these impacts.

Special Status Plant Species

Clearing and grading activities to construct the Red Bluff Substation A and all of its associated improvements (including Access Road 1 and the Telecommunications Site) would cause the direct loss of several foxtail cactus (with an estimated distribution of 5 acres), two Las Animas colubrina (CNPS List 2.3), and two California ditaxis (CNPS List 2.2) (Table 4.3-7). Eight other species of cacti have been recorded in the Project locations as well (see Table 3.3-2) and would be directly impacted by the 145 acres of permanent disturbance caused by construction of Red Bluff Substation A. As for SF-B, although not observed during botanical surveys conducted for the Project, there is a chance that new special status species could emerge within Red Bluff Substation A immediately prior to construction (especially annual species). If present, these species would be directly impacted as well. Implementation of Applicant Measures BIO-1 and BIO-3 through BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Similar direct and indirect impacts associated with dust and the potential introduction of invasive species would also result from construction of Red Bluff Substation A and associated elements as under SF-B. Implementing Applicant Measure BIO-2 would reduce these impacts.

Sensitive Natural Communities

A total of 7 acres of desert dry wash woodland would be temporarily disturbed and a total of 22 acres of desert dry wash woodland would be permanently removed to construct the elements of Red Bluff Substation A (Table 4.3-8), for a total of 29 acres affected. Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on desert dry wash woodland would be similar to those described for SF-B. Implementing Applicant Measure BIO-2 would reduce these impacts.

Jurisdictional Resources

Table 4.3-9 presents the acres of CDFG jurisdictional resources that would be temporarily and permanently disturbed as a result of construction of the elements of the Red Bluff Substation A. A total of 35 acres of CDFG jurisdictional resources would be temporarily disturbed by construction of the elements of Red Bluff Substation A and a total of 47 acres would be permanently disturbed by construction of elements of Red Bluff Substation A (for a total of 82 acres of jurisdictional resources affected). Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO- would reduce these impacts.

Other direct and indirect impacts on these resources would be similar to those described for SF-B. Implementing Applicant Measure BIO-2 would reduce these impacts.

Local Policies or Ordinances Protecting Biological Resources

As described for SF-B, Red Bluff Substation A and its associated elements would be consistent with the open space protection policies of the County of Riverside's General Plan.

Summary of Construction Impacts

Native Vegetation Communities

Table 4.3-6 summarizes the construction impacts on creosote desert scrub and desert dry wash woodland under Alternative 1. In addition, without implementation of Applicant Measures or Mitigation Measures, dust generated during construction could directly adversely affect offsite native vegetation communities immediately adjacent to the Project. Direct impacts on desert dry wash woodland could occur downstream of the Alternative 1 site as a result of construction activities due to an increase in the rate, volume, and sediment load of storm water runoff. Indirect impacts on adjacent vegetation communities could also result due to potential introduction of invasive species into these areas. Implementing Applicant Measures BIO-1, BIO-2, BIO-4, and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts, as would implementation of the mitigation measures discussed above for air resources and water resources.

Table 4.3-6
Summary of Construction Impacts on Vegetation Communities under Alternative 1

Project Feature	Solar Farm B	Gen-Tie Line A-1 Temporary Disturbance	Gen-Tie Line A-1 Permanent Disturbance	Red Bluff Substation A Temporary Disturbance	Red Bluff Substation A Permanent Disturbance	Total Temporary Disturbance	Total Permanent Disturbance	Grand Total
Creosote Desert Scrub	4,210	53	12	21	105	74	4,327	**4,401**
Desert Dry Wash Woodland	35	32	5	7	22	39	62	**101**
Disturbed Areas	0	1	1	0	1	1	2	**3**

Note: Numbers are shown in acres.

Special Status Plant Species

Table 4.3-7 summarizes the direct construction impacts on special status plant species known to occur in the disturbance footprint of Alternative 1. In addition, eight other cacti species are known to occur in this footprint and would be directly impacted by construction and four other special status plant species have the potential to occur in this footprint and could be directly impacted by construction. Finally, indirect impacts associated with dust and the potential introduction of invasive species could affect special status species immediately adjacent to the construction footprint of Alternative 1. Implementing Applicant Measures BIO-1 through BIO-5 and Mitigation Measure BIO-1 would reduce these impacts, as would implementation of the mitigation measures discussed above for air resources.

Table 4.3-7
Summary of Construction Impacts on Special Status Plant Species under Alternative 1

Species	Solar Farm B	Gen-Tie Line A-1	Red Bluff Substation A	Total
Foxtail cactus (CNPS List 4.3)	3 (3 acres)	0	Several (5 acres)	**Several (8 acres)**
Emory's crucifixion thorn (CNPS List 2.3)	1	2	0	**3**
Las Animas colubrina (CNPS List 2.3)	0	0	2	**2**
California ditaxis (CNPS List 2.2)	0	1	2	**3**
Desert unicorn plant (CNPS List 4.3)	0	4	0	**4**
Slender-spined althorn (CNPS List 2.2)	5	0	0	**5**

Note: Numbers of individuals present in the Project locations shown. Estimated acreage of distribution of foxtail cactus shown in parentheses.

Sensitive Natural Communities

Table 4.3-8 summarizes the construction impacts on desert dry wash woodland under Alternative 1. In addition, without implementation of Applicant Measures or Mitigation Measures, dust generated during construction could directly adversely affect offsite native vegetation communities immediately adjacent to the Project. Without implementation of Applicant Measures or Mitigation Measures, indirect impacts on desert dry wash woodland could occur downstream of the Alternative 1 site as a result of construction activities due to an increase in the rate, volume, and sediment load of storm water runoff. Direct impacts on desert dry wash woodland located downstream of Alternative 1 and adjacent to Alternative 1 (Pinto Wash) could also result due to potential introduction of invasive species into these areas. Implementing Applicant Measures BIO-1, BIO-2, BIO-4, and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts, as would implementation of the mitigation measures discussed above for air resources and water resources.

Table 4.3-8
Summary of Construction Impacts on Desert Dry Wash Woodland under Alternative 1

Species	Solar Farm B (acres)	Gen-Tie Line A-1 (acres)	Red Bluff Substation A (acres)	Total (acres)
Desert dry wash woodland temporary disturbance acreage	0	32	7	**39**

Table 4.3-8 (continued)
Summary of Construction Impacts on Desert Dry Wash Woodland under Alternative 1

Species	Solar Farm B (acres)	Gen-Tie Line A-1 (acres)	Red Bluff Substation A (acres)	Total (acres)
Desert wash woodland permanent disturbance acreage	35	5	22	**62**
Total (acres)	35	37	29	**101**

Jurisdictional Resources

Table 4.3-9 summarizes the direct construction impacts on CDFG jurisdictional resources under Alternative 1. Similar to impacts described in the *Sensitive Natural Communities* section, without implementation of Applicant Measures or Mitigation Measures, dust generated during construction could directly adversely affect offsite native vegetation communities immediately adjacent to the Project. Direct impacts on jurisdictional resources could occur downstream of the Alternative 1 site as a result of construction activities due to an increase in the rate, volume, and sediment load of storm water runoff. Direct impacts on desert dry wash woodland located downstream of Alternative 1 and adjacent to Alternative 1 (Pinto Wash) could also result due to potential introduction of invasive species into these areas. Implementing Applicant Measures BIO-1, BIO-2, BIO-4, and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts, as would implementation of the mitigation measures discussed above for air resources and water resources.

Table 4.3-9
Summary of Construction Impacts on Jurisdictional Resources under Alternative 1

Species	Solar Farm B (acres)	Gen-Tie Line A-1 (acres)	Red Bluff Substation A (acres)	Total (acres)
Desert Dry Wash – In Creosote Desert Scrub Habitat*				
Temporary disturbance acreage	0	7	28	**35**
Permanent disturbance acreage	191	2	25	**218**
Subtotal (acres)	191	9	53	**253**
Riparian – Desert Dry Wash Woodland				
Temporary disturbance acreage	0	32	7	**39**
Permanent disturbance acreage	35	5	22	**62**
Subtotal (acres)	35	37	29	**101**
Total (acres)	**226**	**46**	**82**	**354**

Notes:
*Largely unvegetated desert dry washes found within creosote desert scrub habitat.

Local Policies or Ordinances Protecting Biological Resources

As described for SF-B, construction of Alternative 1 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Operation and Maintenance

Solar Farm Layout B

Native Vegetation Communities

Installation of SF-B would have a direct impact on the geomorphic conditions and hydrology of the site and would potentially alter surface flow in desert dry wash woodland immediately downstream of the site (AECOM 2010). The relatively diverse hydrological conditions at the site would be modified by ground preparation to result in a more uniform, consistent condition. Without proper mitigation measures, the site would likely support rapidly migrating shallow channels, approximately two feet deep or less. In some cases, smaller features would be interrupted and routed parallel to the disturbance eventually merging with a larger wash. Washes that are interrupted may become less active resulting in less surface flow, subsurface infiltration, scour, and sediment deposition. These factors may lead to adverse effects on downstream vegetation within desert dry wash woodlands. Other washes may become more active resulting in an increase in surface water flow. When graded areas are routinely maintained, distinctly different conditions may form on the upstream and downstream side of a site as well.

Proposed soil decompaction is expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Additional mitigation measures (e.g., rip rap or gabion siltation basins) discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology (to within one percent of pre-development hydraulic conditions).

Dust generated during maintenance of access roads could directly adversely affect offsite native vegetation communities immediately adjacent to the Project by covering stomata and reducing photosynthetic or respiratory activity. Over the proposed 26-month construction period, this could cause lowered growth rates, increased susceptibility to disease, lowered reproductive capacity, or lowered ability to compete with nonnative species. Implementation of dust control measures as discussed in Section 4.2, Air Resources, would be employed to reduce these impacts. Finally, maintenance of access roads associated with SF-B would have the potential to introduce invasive plant species into areas of creosote desert scrub and desert dry wash woodland immediately adjacent to the access roads. Construction vehicles and crews could inadvertently track in clinging seeds and/or parts of noxious weeds, thus facilitating their spread. Implementation of Applicant Measure BIO-2 would reduce these invasive species impacts.

Special Status Plant Species

Maintenance of access roads associated with SF-B would have the potential to introduce invasive plant species into areas immediately adjacent to the access roads. Vehicles and crews could inadvertently track in clinging seeds and/or parts of noxious weeds, thus facilitating their spread. Implementation of Applicant Measure BIO-2 would reduce these impacts.

Dust generated during maintenance of access roads could directly adversely affect special status plant species adjacent to SF-B. Implementation of dust control measures as discussed in Section 4.2, Air Resources, would be employed to reduce these impacts.

Sensitive Natural Communities

Operation and maintenance impacts on sensitive natural communities would be similar to impacts on *Native Vegetation Communities* described above. Implementing Applicant Measure BIO-2 would reduce these impacts.

Jurisdictional Resources

Impacts associated with operation and maintenance of SF-B would be similar to those described under the *Native Vegetation Communities* section above. Implementing Applicant Measure BIO-2 would reduce these impacts.

Local Policies or Ordinances Protecting Biological Resources

Because SF-B was sited to avoid pristine or biologically sensitive areas, the operation and maintenance of SF-B would be consistent with the open space protection policies of the County of Riverside's General Plan.

Gen-Tie Line A-1

Impacts associated with operation and maintenance of GT-A-1 would be similar to those described for SF-B above.

Red Bluff Substation A

Impacts associated with operation and maintenance of Red Bluff Substation A would be similar to those described for SF-B above.

Summary of Operation and Maintenance Impacts

Native Vegetation Communities

Installation of Alternative 1 would have a direct impact on the geomorphic conditions and hydrology of the site and would potentially alter surface flow in desert dry wash woodland immediately downstream of the site (AECOM 2010). The relatively diverse hydrological conditions at the site would be modified by ground preparation to result in a more uniform, consistent condition. Without proper mitigation measures, the site would likely support rapidly migrating shallow channels, approximately two feet deep or less. In some cases, smaller features would be interrupted and routed parallel to the disturbance eventually merging with a larger wash. Washes that are interrupted may become less active resulting in less surface flow, subsurface infiltration, scour, and sediment deposition. These factors may lead to adverse effects on downstream vegetation within desert dry wash woodlands. Other washes may become more active resulting in an increase in surface water flow. When graded areas are routinely maintained, distinctly different conditions may form on the upstream and downstream side of a site as well.

Proposed soil decompaction is expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Additional mitigation measures (e.g., rip rap or gabion siltation basins) discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology (to within one percent of pre-development hydraulic conditions).

Dust generated during maintenance of access roads could directly adversely affect native vegetation communities adjacent to Alternative 1. Implementation of dust control measures as discussed in Section 4.2, Air Resources, would be employed to reduce these impacts. Finally, maintenance of access roads associated with Alternative 1 would have the potential to introduce invasive plant species into areas of creosote desert scrub and desert dry wash woodland immediately adjacent to the access roads. Construction vehicles and crews could inadvertently track in clinging seeds and/or parts of noxious weeds, thus facilitating their spread. Implementation of Applicant Measure BIO-2 would reduce these invasive species impacts

Special Status Plant Species

Maintenance of access roads associated with Alternative 1 would have the potential to introduce invasive plant species into areas immediately adjacent to the access roads. Construction vehicles and crews could inadvertently track in clinging seeds and/or parts of noxious weeds, thus facilitating their spread. Implementation of Applicant Measure BIO-2 would reduce these impacts.

Dust generated during maintenance of access roads could directly adversely affect special status plant species adjacent to Alternative 1. Implementation of dust control measures as discussed in Section 4.2, Air Resources, would be employed to reduce these impacts.

Sensitive Natural Communities

Operation and maintenance impacts on sensitive natural communities would be similar to impacts on *Native Vegetation Communities* described above.

Jurisdictional Resources

Impacts associated with operation and maintenance of Alternative 1 would be similar to those described under the *Native Vegetation Communities* section above.

Local Policies or Ordinances Protecting Biological Resources

As described for SF-B, the operation and maintenance of Alternative 1 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Decommissioning

Solar Farm Layout B

Native Vegetation Communities

Decommissioning of the SF-B facilities is anticipated to only directly impact areas previously disturbed by installation of the facilities. Removal of native vegetation communities is not anticipated for decommissioning activities. However, potential impacts on the rate, volume, and quality of storm water runoff and the potential introduction of dust and invasive species associated with decommissioning activities could have direct and indirect effects on vegetation communities located immediately adjacent to SF-B (for invasive species), similar to the impacts associated with construction of SF-B.

Implementation of the dust control mitigation measures discussed in Section 4.2, Air Resources, would be employed to reduce these dust impacts. Implementation of a SWPPP during decommissioning activities as discussed in Section 4.17, Water Resources, would reduce these impacts as well. In addition, implementation of Applicant Measure BIO-2 would reduce the potential for the introduction of invasive species.

Special Status Plant Species

Decommissioning of the SF-B facilities is anticipated to only directly impact areas previously disturbed by installation of the facilities. Removal of special status plant species is not anticipated for decommissioning activities. In addition, revegetation of the site would benefit special status plant species. However, dust impacts and the potential introduction of invasive species associated with decommissioning activities could have direct and indirect effects on special status plant species located immediately adjacent to SF-B, similar to the impacts associated with construction of SF-B.

Implementation of the dust control mitigation measures discussed in Section 4.2, Air Resources, would be employed to reduce these dust impacts. Implementation of Applicant Measure BIO-2 would reduce the potential for the introduction of invasive species.

Sensitive Natural Communities

Impacts associated with decommissioning SF-B would be similar to those described under the *Native Vegetation Communities* section above.

Jurisdictional Resources

Impacts associated with decommissioning SF-B would be similar to those described under the *Native Vegetation Communities* section above.

Local Policies or Ordinances Protecting Biological Resources

Because SF-B was sited to avoid pristine or biologically sensitive areas, decommissioning of SF-B would be consistent with the open space protection policies of the County of Riverside's General Plan.

Gen-Tie Line A-1

Impacts associated with decommissioning GT-A-1 would be similar to those described for SF-B above.

Red Bluff Substation A

Impacts associated with decommissioning Red Bluff Substation A would be similar to those described for SF-B above.

Summary of Decommissioning Impacts

Native Vegetation Communities

Decommissioning of the Alternative 1 facilities is anticipated to only directly impact areas previously disturbed by installation of the facilities. Removal of native vegetation communities is not anticipated for decommissioning activities. However, potential impacts on the rate, volume, and quality of storm water runoff and the potential introduction of dust and invasive species associated with decommissioning activities could have direct and indirect effects on vegetation communities located immediately adjacent to Alternative 1 (for invasive species), similar to the impacts associated with construction of Alternative 1.

Implementation of the dust control mitigation measures discussed in Section 4.2, Air Resources, would be employed to reduce these dust impacts. Implementation of a SWPPP during decommissioning activities as discussed in Section 4.17, Water Resources, would reduce these impacts. In addition, implementation of Applicant Measure BIO-2 would reduce the potential for the introduction of invasive species.

Special Status Plant Species

Removal of special status plant species is not anticipated under decommissioning activities for Alternative 1 and revegetation of the site would be beneficial to special status plant species. However, decommissioning activities could have direct and indirect impacts on special status plant species immediately adjacent to Alternative 1 facilities, similar to impacts associated with construction of Alternative 1, due to dust and the potential introduction of invasive species.

Implementation of the dust control mitigation measures discussed in Section 4.2, Air Resources, would be employed to reduce these dust impacts. Implementation of Applicant Measure BIO-2 would reduce the potential for the introduction of invasive species.

Sensitive Natural Communities

Impacts associated with decommissioning Alternative 1 would be similar to those described under the *Native Vegetation Communities* section above.

Jurisdictional Resources

Impacts associated with decommissioning Alternative 1 would be similar to those described under the *Native Vegetation Communities* section above.

Local Policies or Ordinances Protecting Biological Resources

Because Alternative 1 was sited to avoid pristine or biologically sensitive areas, decommissioning of Alternative 1 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Summary of Combined Impacts for Alternative 1

In summary, construction of Alternative 1 would result in the temporary disturbance of 74 acres of creosote desert scrub and 39 acres of desert dry wash woodland and permanent disturbance of 4,327 acres of creosote desert scrub and 62 acres of desert dry wash woodland. In addition, without implementation of Applicant Measures or Mitigation Measures, direct impacts on desert dry wash woodland located downstream and immediately adjacent to the Alternative 1 site could occur as a result of construction activities due to an increase in the rate, volume, and sediment load of storm water runoff. Direct and indirect impacts native vegetation communities located adjacent to Alternative 1 could also result due to dust and potential introduction of invasive species into these areas.

Construction of Alternative 1 would result in the direct loss of approximately 8 acres of foxtail cactus (at least three individuals), three individuals each of the Emory's crucifixion thorn, two individuals of the Las Animas colubrina, three individuals of the California ditaxis, four individuals of the desert unicorn plant, and five individuals of the slender-spined allthorn. In addition, eight other cacti species are known to occur in this footprint and would be directly impacted by construction. Although not detected during botanical surveys for the Proposed Project, there is also the chance that other special status plant species could emerge prior to construction and could be directly impacted by construction. Finally, direct and indirect impacts associated with dust and the potential introduction of invasive species could affect special status plant species immediately adjacent to the construction footprint of Alternative 1.

Construction of Alternative 1 would also result in the temporary disturbance of 101 acres of CDFG jurisdictional resources and permanent disturbance of 253 acres of CDFG jurisdictional resources (for a total of 354 acres of jurisdictional resources affected). In addition, without implementation of Applicant Measures or Mitigation Measures, direct impacts on jurisdictional resources could occur downstream of the Alternative 1 site as a result of construction activities due to an increase in the rate, volume, and sediment load of storm water runoff. Direct and indirect impacts on jurisdictional resources located downstream of Alternative 1 and adjacent to Alternative 1 (Pinto Wash) could also result due to dust and potential introduction of invasive species into these areas.

While no additional direct impacts on vegetation are anticipated during operation and maintenance and decommissioning of Alternative 1 facilities, changes in the site's geomorphic conditions and site hydrology could adversely affect the hydrology and water quality of desert dry wash woodland and jurisdictional resources located downstream of the site. In addition, maintenance of access roads and decommissioning activities have the potential to introduce dust and invasive species into areas immediately adjacent to the site which could adverse effects on native vegetation communities, special status plant species, sensitive natural communities, and jurisdictional resources.

Because Alternative 1 was sited to avoid pristine or biologically sensitive areas, Alternative 1 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Applicant Measures and Mitigation Measures

AM-BIO-1. A *Habitat Compensation Plan* (Ironwood Consulting 2010c) has been prepared and will be implemented by the Applicant to compensate for the loss of creosote desert scrub, desert dry wash woodland, and other 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 including the recently approved mitigation program created by Senate Bill 34 (SB 34). The *Habitat Compensation Plan* will be reviewed and approved by BLM, the USFWS, and CDFG. The precise details of the mitigation, including mitigation ratios, will be established in the BLM ROW grant, USFWS Biological Opinion, and CDFG 2080.1 Consistency Determination. The draft plan is provided in Appendix H.

At a minimum, mitigation ratios required in the NECO Plan/EIS are 1:1 for creosote bush scrub, 3:1 for desert dry wash woodland, and 5:1 for impacts to the Chuckwalla DWMA and Chuckwalla CHU (see Section 4.4, Wildlife, for a discussion of impacts on wildlife). Mitigation ratios may be greater based upon the requirements of the USFWS and CDFG. Finally, areas occupied by the burrowing owl will be mitigated at 6.5 acres per occupied burrow (which will be covered by mitigation of creosote bush scrub habitat) and creation or enhancement of two burrows will be implemented for every active burrow.

AM-BIO-2. An *Integrated Weed Management Plan* (IWMP) (Ironwood Consulting 2010b) has been 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* (The National Invasive Species Council 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 is provided in Appendix H of this document and will be reviewed and approved by the BLM.

The following measures are required in the Plan and will be implemented by the Applicant to monitor and control invasive species:

- Preventative Measures During Construction
    - Equipment Cleaning: To prevent the spread of weeds into new habitats, and prior to entering the Project work areas, construction equipment will be cleaned of dirt and mud that could contain weed seeds, roots, or rhizomes. Equipment will be inspected to ensure they are free of any dirt or mud that could contain weed seeds and the tracks, feet, tires, and undercarriage will be carefully washed, with special attention being paid to axles, frame, cross members, motor mounts, underneath steps, running boards, and front bumper/brush guard assemblies. Other construction vehicles (e.g. pick-up trucks) that will be frequently entering and exiting the site will be inspected and washed on an as-needed basis.

      All vehicles will be washed off-site when possible. Should off-site washing prove infeasible, an on-site cleaning station will be set up to clean equipment before it enters the work area. Either high-pressure water or air will be used to clean equipment and the cleaning site will be situated away from any sensitive biological resources. If possible, water used to wash vehicles and equipment will be collected and re-used.
    - Site Soil Management: Soil management will consist of limiting ground disturbance to the minimum necessary for construction activities and using dust suppressants to minimize the spread of seeds. Disturbed vegetation and topsoil will be re-deposited at or near the area from which they are removed to eliminate the transport of soil-borne noxious weed seeds, roots, or rhizomes. BLM-approved dust suppressants (e.g. water and/or palliative) will be minimized on the site as much as possible, but

will use during construction to minimize the spread of airborne weed seeds, especially during very windy days.

- Weed-free Products: Any use of hay or straw bales on the Project site will be limited to certified weed-free material. Other products such as gravel, mulch, and soil may also carry weeds and these products, too, will be certified weed-free. If needed, mulch will be made from the local, on-site native vegetation cleared from the Project area. Soil will not be imported onto the Project site from off-site sources.
- Personnel Training. Weed management will be part of mandatory site training for all construction personnel and will be included in initial Worker Environmental Awareness Program training briefings. Training will include weed identification and the threat of impacts including impacts to local agriculture, vegetation communities, wildlife, and creating fire potential. Training will also cover the importance of preventing the spread of weeds.

- Containment and Control Measures

When Project monitoring (see below) indicates that invasive species are spreading, invasive species will be removed using mechanical and chemical methods. The Applicant will use mechanical weed removal methods as the preferred method, but herbicides may be used when conditions (such as wind, proximity of native vegetation) are such that the effect on native species is expected to be minimal. During suppression or eradication activities, care will be taken to have the least affect on native plant species. Herbicides used will be limited to those approved by the BLM. Herbicides will be applied before the invasive species flower and set seed.

If monitoring indicates the spread of athel, a woody invasive species, then athel will be controlled by cutting the trees and applying Garlon™ Ultra Herbicide to the stump immediately after cutting. Garlon™ is approved for use on athel by the BLM. All cut material generated during athel clearance will be removed from the site by truck. This material will be covered with a tarp or other material that will keep athel cuttings or seed from being spread by truck movement.

The Applicant and its contractors will follow the BLM's Herbicide Use Standard Operating Procedures provided in Appendix B of the Record of Decision for the *Final Vegetation Treatments Using Herbicides Programmatic Environmental Impact Statement* (BLM 2007). Personnel responsible for weed control will be trained in the proper and safe use of all equipment and chemicals used for weed control.

- Monitoring

Baseline weed conditions will be assessed during the pre-construction phase of the Project, during pre-construction surveys and staking and flagging of construction areas. A stratified random sampling technique will be used to identify and count the extent of weeds on the site.

Monitoring will take place each year during construction, and annually for three years following the completion of construction. The purpose of annual monitoring will be to determine if weed populations identified during baseline surveys have increased in density or are spreading as a result of the Project. Control methods will be implemented when measurable weed increases, as well as visually verified increases, are detected during monitoring. This will include small patches of unusually high density weeds (e.g., concentrations in swales) that are growing as a result of Project activities.

During construction, daily monitoring records will be kept by biological monitors that will include information relevant to invasive weeds. During Project operations and maintenance, the facility owner or appropriate designee will be required to continually update the potential noxious and invasive weed list and provide monitoring and management appropriate to any new species in coordination with the BLM.

After the three years of operations monitoring is complete, general management and monitoring of the Project area will be conducted by designated site personnel each year during both the germinating and early growing season (November through April) to eliminate new weed individuals prior to seed set. Throughout construction and long-term monitoring, personnel will be trained to identify weedy and native species and work with a trained vegetation monitor to determine where elimination is necessary.

- Reporting

  Results of monitoring and management efforts will be included in annual reports and a final monitoring report completed at the end of three years of post-construction monitoring. Copies of these reports will be kept on file at the site. Copies of each annual report as well as the final monitoring report will be sent to the BLM for review and comment. BLM will use the results of these reports to determine if any additional monitoring or control measures are necessary.

- Success Criteria

  Weed control will be ongoing on the Project site for the life of the Project, but plan success will be determined by BLM after the three years of operations monitoring through the reporting and review process. Success criteria will be defined as having no more than ten percent increase in a weed species or in overall weed cover in any part of the Project.

AM-BIO-3. Pre-Construction Surveys for Special Status Plant Species and Cacti. Prior to construction, the Applicant will stake and flag the construction area boundaries, including the construction areas for the Solar Farm site, Gen-Tie Lines, and Red Bluff Substation; 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.

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 program 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. The program will:

- Be developed by or in consultation with a 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;
- Discuss the locations and types of sensitive biological resources on the Project site and adjacent areas, and explain the reasons for protecting these resources and penalties for harm or damage to these resources;
- Include a discussion of fire prevention measures to be implemented by workers during Project activities, including a request that workers dispose of cigarettes and cigars appropriately and not leave them on the ground or buried;
- Describe the temporary and permanent habitat protection measures to be implemented at the Project site;
- Identify whom to contact if there are further comments and questions about the material discussed in the program; and
- Include a training acknowledgement form to be signed by each worker indicating that they received training and shall abide by the guidelines.

The training will place special emphasis on the special status species that have been observed in the Project locations or have a high likelihood to occur, including special status plant species, desert tortoise and other special status reptile species, Palm Springs round-tailed ground squirrel, burrowing owl, golden eagle, nesting bird species and bat species, and the American badger.

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. 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. The Plan will include the following:
    - Criteria for determining whether an individual plant is appropriate for salvage;
    - The appropriate season for salvage;
    - Equipment and methods for salvage, transport, and planting;
    - A requirement that plants be marked to identify the north-facing side prior to transport, and replanted in the same orientation;
    - Storage and/or pre-planting requirements for each species;
    - A requirement to collect seed and voucher specimens from the special status species located within the Project locations;
    - The proposed location and several alternative locations for transplanting the cacti and special status plant species;

  - A requirement for three years of maintenance of the transplanted individuals, including removal of invasive species and irrigation (if necessary);
  - A requirement for three years of monitoring to determine the percentage of surviving plants each year and to adjust maintenance activities using an adaptive management approach.
- 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 Plan will include the following:
  - A planting plan, including the number, size, and species of container plants and/or the amount and species of seed necessary to revegetate both habitat types;
  - The appropriate season for planting and/or seeding;
  - The methodology for planting and/or seeding;
  - A description of the method(s) for irrigation and an irrigation schedule for the restoration areas;
  - Success criteria for percent cover of native plant species over a three year period following installation of container plants and/or completion of seeding, and a requirement for replacement plantings when success criteria are not met;
  - A requirement that the percent cover of invasive species in the restoration areas will be maintained no higher than 10 percent for up to three years following installation of container plants and/or completion of seeding;
  - A requirement for three years of maintenance of the restored areas, including removal of invasive species and irrigation;
  - A requirement for three years of monitoring of the restored areas to evaluate compliance with success criteria and to adjust maintenance activities using an adaptive management approach; and
  - A requirement for annual monitoring reports which will be submitted to BLM.

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.

MM-BIO-1. Construction Monitoring. A BLM-approved biologist shall conduct construction monitoring during all construction activities to ensure that construction activities are contained within the staked and flagged construction areas at all times. The construction monitor shall also be present during all ground disturbing activities to either actively or passively relocate special status wildlife species, other than the desert tortoise, nesting bird species, and burrowing owl (e.g., rosy boa, chuckwalla, Palm Springs round-tailed squirrel, American badger, and Colorado Valley woodrat [and burro deer, Nelson's bighorn sheep, and mountain lion if need be]), found within the construction zones to a suitable location outside of the project footprint. The construction monitor shall have the authority to stop work and report directly to the Applicant's Environmental Manager to ensure compliance with the Project Description, applicant-proposed measures, and mitigation measures. The construction monitor shall provide the Applicant's Environmental Manager with weekly updates and quarterly monitoring reports. After construction has been completed, the construction monitor shall provide the Applicant's Environmental Manager with a final monitoring report. The Applicant's Environmental Manager shall provide BLM with weekly status updates on the status of construction and monitoring efforts and shall provide BLM with copies of the quarterly monitoring reports and the final monitoring report. BLM shall be responsible for ensuring that construction monitoring is conducted during all construction activities.

CEQA Significance Determination

Solar Farm Layout B

Impact BIO-1 – Direct and Indirect Impacts to Native Vegetation Communities

The direct loss of 4,210 acres of creosote desert scrub and 35 acres of desert dry wash woodland would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H and required in Applicant Measure BIO-1 would ensure that the loss of these vegetation communities is adequately compensated for and equivalent habitat would be protected offsite. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

Without implementation of applicant measures or mitigation measures, construction and operation and maintenance of SF-B could affect the hydrology and quality of storm water runoff quality in desert dry wash woodland downstream of SF-B. However, implementation of a SWPPP during construction (an applicant measure), as discussed in Section 4.17, Water Resources, would reduce construction impacts. In addition, proposed soil decompaction is expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures (e.g., rip rap or gabion siltation basins) discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology (to within one percent of pre-development hydraulic conditions). As a result, implementation of these mitigation measures would bring operation and maintenance impacts to less than significant levels.

Due to the large size of SF-B, potential indirect construction, operation and maintenance, and decommissioning impacts on adjacent vegetation communities from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and proposed in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operation and maintenance, and decommissioning activities could adversely affect nearby vegetation communities. However, dust control applicant measures and mitigation measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-2 – Direct and Indirect Impacts to Special Status Plant Species

The direct loss of only three individual foxtail cactus, one individual Emory's crucifixion thorn, and five slender-spined allthorn during construction of SF-B would not significantly affect the populations of these species, however, because these are special status species, impacts to these individuals would be considered significant. However, as indicated in Figure 3.3-3, the location of SF-B was designed to avoid the largest concentrations of foxtail cactus in the area, the most prevalent special status plant species in the Project Study Area. In addition, implementation of Applicant Measure BIO-1 would ensure that equivalent habitat for these species is preserved elsewhere which is expected to benefit the overall populations of these species. Applicant Measures BIO-3 and BIO-5 would ensure that any special status plant species found within the Project locations would be salvaged and transplanted if feasible. Applicant Measure BIO-4 would ensure that construction workers are aware of the protection measures for special status plant species.

Nevertheless, during construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger number of special status plant species than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

The loss of individual cacti among the eight cacti species that are present in the footprint of SF-B would be considered significant. However, the loss of these individuals is not expected to affect the species' populations. In addition, implementation of Applicant Measures BIO-3 and BIO-5 would ensure that all individuals of these species are salvaged where feasible. Therefore, significant impacts would be reduced to less than significant levels.

Due to the large size of SF-B, potential construction, operation and maintenance, and decommissioning impacts on special status plant species from dust would be significant. However, implementation of dust control measures discussed in Section 4.2, Air Resources, would ensure that these impacts are less than significant.

In addition, due to the large size of SF-B, potential indirect construction, operation and maintenance, and decommissioning impacts on special status plant species from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Impact BIO-3 – Direct and Indirect Impacts to Sensitive Natural Communities

The direct loss of 35 acres of desert dry wash woodland would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

Without implementation of applicant measures or mitigation measures, construction and operation and maintenance of SF-B could affect the hydrology and quality of storm water runoff quality in desert dry wash woodland downstream of SF-B. However, implementation of a SWPPP during construction (an applicant measure), as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is expected to also substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures (e.g., rip rap or gabion siltation basins) discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology (to within one percent of pre-development hydraulic conditions). As a result, implementation of these mitigation measures would bring operation and maintenance impacts to less than significant levels.

Due to the large size of SF-B, potential indirect construction, operation and maintenance, and decommissioning impacts on desert dry wash woodland from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operation and maintenance, and decommissioning activities could adversely affect nearby sensitive natural communities. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-4 – Direct and Indirect Impacts to Jurisdictional Resources

The direct loss of 226 acres of jurisdictional resources would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-2 would ensure that the loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

As discussed under *Sensitive Natural Communities* above, without implementation of applicant measures or mitigation measures, construction and operation and maintenance of SF-B could affect the hydrology and quality of storm water runoff quality in jurisdictional resources downstream of SF-B. However, implementation of a SWPPP during construction (an applicant measure), as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is expected to also substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures (e.g., rip rap or gabion siltation basins) discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these mitigation measures would bring operation and maintenance impacts to less than significant levels.

Due to the large size of SF-B, potential indirect construction, operation and maintenance, and decommissioning impacts on jurisdictional resources from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operation and maintenance, and decommissioning activities could adversely affect nearby jurisdictional resources. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-5 – Local Policies or Ordinances Protecting Biological Resources

There would be no construction, operation and maintenance, or decommissioning impacts under significance criterion BIO-5.

Gen-Tie Line A-1

Impact BIO-1– Direct and Indirect Impacts to Native Vegetation Communities

The direct loss of 12 acres of creosote desert scrub and 5 acres of desert dry wash woodland and temporary disturbance of an additional 53 acres of creosote desert scrub and 32 acres of desert dry wash woodland would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-4 would ensure that the permanent loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored with native vegetation. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

Without implementation of applicant measures or mitigation measures, construction and operation and maintenance of GT-A-1 could affect the hydrology and quality of storm water runoff quality in desert dry wash woodland downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these mitigation measures would bring operation and maintenance impacts to less than significant levels.

Due to the linear nature of GT-A-1, potential indirect construction, operation and maintenance, and decommissioning impacts on native vegetation communities from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of these measures, impacts would be reduced to less than significant levels.

Finally, dust from construction, operations and maintenance, and decommissioning activities could adversely affect nearby vegetation communities. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-2 – Direct and Indirect Impacts to Special Status Plant Species

The direct loss of two individual Emory's crucifixion thorns, one California ditaxis, and four desert unicorn plants during construction of GT-A-1 would not significantly affect the populations of these species, however, given that these are special status species, impacts on these individuals would be considered significant. However, implementation of Applicant Measure BIO-1 would ensure that equivalent habitat for these species is preserved elsewhere which is expected to benefit the overall populations of these species. Applicant Measures BIO-3 and BIO-5 would ensure that any special status plant species found within the Project locations would be salvaged and transplanted if feasible. Applicant Measure BIO-4 would ensure that construction workers are aware of the protection measures for special status plant species.

Nevertheless, during construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger number of special status plant species than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

The loss of individual cacti among the eight cacti species that are present in the footprint of GT-A-1 would be considered significant. However, the loss of these individuals is not expected to affect the species' populations. In addition, implementation of Applicant Measures BIO-3 and BIO-5 would ensure that all individuals of these species are salvaged where feasible. Therefore, significant impacts would be reduced to less than significant levels.

Due to the linear nature of GT-A-1, potential construction, operation and maintenance, and decommissioning impacts on special status plant species from dust would be significant. However, implementation of dust control measures discussed in Section 4.2, Air Resources, would ensure that these impacts are less than significant.

In addition, due to the linear nature of GT-A-1, potential indirect construction, operation and maintenance, and decommissioning impacts on special status plant species from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Impact BIO-3 – Direct and Indirect Impacts to Sensitive Natural Communities

The direct loss of 5 acres of desert dry wash woodland and temporary disturbance of an additional 32 acres would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the permanent loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored with native vegetation. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

Without implementation of applicant measures or mitigation measures, construction and operation and maintenance of GT-A-1 could affect the hydrology and quality of storm water runoff quality in desert dry wash woodland downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these mitigation measures would bring operation and maintenance impacts to less than significant levels.

Due to the linear nature of GT-A-1, potential indirect construction, operation and maintenance, and decommissioning impacts on desert dry wash woodland from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operation and maintenance, and decommissioning activities could adversely affect nearby sensitive natural communities. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-4 – Direct and Indirect Impacts to Jurisdictional Resources

The direct loss of 7 acres of jurisdictional resources and the temporary disturbance of an additional 39 acres would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-4 would ensure that the permanent loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

As discussed under *Sensitive Natural Communities* above, without implementation of applicant measures or mitigation measures, construction and operation and maintenance of GT-A-1 could affect the hydrology and quality of storm water runoff quality in jurisdictional resources downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Due to the linear nature of GT-A-1, potential indirect construction, operation and maintenance, and decommissioning impacts on jurisdictional resources from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operation and maintenance, and decommissioning activities could adversely affect nearby jurisdictional resources. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-5 – Local Policies or Ordinances Protecting Biological Resources

There would be no construction, operation and maintenance, or decommissioning impacts under criterion BIO-5.

Red Bluff Substation A

Impact BIO-1– Direct and Indirect Impacts to Native Vegetation Communities

The direct loss of 105 acres of creosote desert scrub and 22 acres of desert dry wash woodland and temporary disturbance of an additional 21 acres of creosote desert scrub and 7 acres of desert dry wash woodland would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of these vegetation communities is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

Without implementation of applicant measures or mitigation measures, construction and operation and maintenance of Red Bluff Substation A could affect the hydrology and quality of storm water runoff quality in desert dry wash woodland downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures (e.g., rip rap or gabion siltation basins) discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Potential indirect construction, operation and maintenance, and decommissioning impacts on adjacent vegetation communities from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in

Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operation and maintenance, and decommissioning activities could adversely affect nearby vegetation communities. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-2 – Direct and Indirect Impacts to Special Status Plant Species

The direct loss of only two individual Las Animas colubrina and two individual California ditaxis during construction of Red Bluff Substation A would not significantly affect the populations of these species, however, because these are special status species, impacts on these individuals would be significant. Construction would also directly impact several individuals of foxtail cactus distributed over an eight-acre area which would be considered significant. However, implementation of Applicant Measure BIO-1 would ensure that equivalent habitat for these species is preserved elsewhere which is expected to benefit the overall populations of these species. Applicant Measures BIO-3 and BIO-5 would ensure that any special status plant species found within the Project locations would be salvaged and transplanted if feasible. Applicant Measure BIO-4 would ensure that construction workers are aware of the protection measures for special status plant species.

Nevertheless, during construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger number of special status plant species than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

The loss of individual cacti among the eight cacti species that are present in the footprint of Red Bluff Substation A would be considered significant. However, the loss of these individuals is not expected to affect the species' populations. In addition, implementation of Applicant Measures BIO-3 and BIO-5 would ensure that all individuals of these species are salvaged where feasible. Therefore, significant impacts would be reduced to less than significant levels.

Potential construction, operation and maintenance, and decommissioning impacts on special status plant species from dust would be significant. However, implementation of dust control measures discussed in Section 4.2, Air Resources, would ensure that these impacts are less than significant.

In addition, potential indirect construction, operation and maintenance, and decommissioning impacts on special status plant species from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Impact BIO-3 – Direct and Indirect Impacts to Sensitive Natural Communities

The direct loss of 22 acres of desert dry wash woodland and temporary disturbance of an additional 7 acres would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

Without implementation of applicant measures or mitigation measures, construction and operation and maintenance of Red Bluff Substation A could affect the hydrology and quality of storm water runoff quality in desert dry wash woodland downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Potential indirect construction, operation and maintenance, and decommissioning impacts on desert dry wash woodland from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-3 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operation and maintenance, and decommissioning activities could adversely affect nearby sensitive natural communities. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-4 – Direct and Indirect Impacts to Jurisdictional Resources

The direct loss of 47 acres of jurisdictional resources and the temporary disturbance of an additional 35 acres would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

As discussed under the *Sensitive Natural Communities* section above, without implementation of applicant measures or mitigation measures, construction and operation and maintenance of Red Bluff Substation A could affect the hydrology and quality of storm water runoff quality in jurisdictional resources downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within five percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Potential indirect construction, operation and maintenance, and decommissioning impacts on jurisdictional resources from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-3 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operation and maintenance, and decommissioning activities could adversely affect nearby jurisdictional resources. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-5 – Local Policies or Ordinances Protecting Biological Resources

There would be no construction, operation and maintenance, or decommissioning impacts under criterion BIO-5.

Unavoidable Adverse Effects

With implementation of mitigation measures, there would be no unavoidable significant impacts with Alternative 1.

4.3.4 Alternative 2 – Alternate Action

Construction

Solar Farm Layout B

The impacts resulting from constructing SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

Impacts from construction and operation of GT-B-2 would be nearly identical in type and magnitude to those described for GT-A-1, since the two lines overlap for a portion of their length. Impacts would be slightly different where these two Gen-Tie Lines diverge at their southern ends.

Native Vegetation Communities

A total of 24 acres of creosote desert scrub would be temporarily disturbed and a total of 3 acres of creosote desert scrub would be permanently removed to construct GT-B-2 (Table 4.3-10), for a total of 27 acres affected. Acreages of desert dry wash woodland that would be disturbed are discussed below under Sensitive Natural Communities. Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on native vegetation communities would be similar to those described under SF-B. However, given the linear nature of the GT-B-2 footprint, there is a greater risk that weeds could be introduced and spread over a large area. Implementation of Applicant Measure BIO-2 would reduce impacts.

Special Status Plant Species

Clearing and grading activities to construct GT-B-2 would cause the direct loss of two crucifixion thorns (CNPS List 2.3), several California ditaxis (CNPS List 2.2), and one desert unicorn plant (CNPS List 4.3) (Table 4.3-11). Eight other species of cacti have been recorded in the Project locations as well (see Table 3.3-2) and would be directly impacted by the 12 acres of permanent disturbance and 62.1 additional acres of temporary disturbance caused by construction of GT-B-2. As for SF-B, although not observed during botanical surveys there is the potential for new special status species to emerge within GT-B-2 prior to construction. If present, these species would be directly impacted as well. Implementation of Applicant Measures BIO-1 and BIO-3 through BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on special status plant species would be similar to those described under SF-B. However, given the linear nature of the GT-B-2 footprint, there is an even greater risk that weeds could be introduced and spread over a large area. Implementation of Applicant Measure BIO-2 would reduce these impacts.

Sensitive Natural Communities

A total of 42 acres of desert dry wash woodland would be temporarily disturbed and a total of 7 acres of desert dry wash woodland would be permanently removed to construct GT-B-2 (Table 4.3-12), for a total of 49 acres affected. Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on desert dry wash woodland would be similar to those described under SF-B. However, given the linear nature of the GT-B-2 footprint, there is a greater risk that weeds could be introduced and spread over a large area. Implementation of Applicant Measure BIO-2 would reduce these impacts.

Jurisdictional Resources

Table 4.3-13 presents the acres of CDFG jurisdictional resources that would be temporarily and permanently disturbed as a result of construction of GT-B-2. A total of 44 acres of CDFG jurisdictional resources would be temporarily disturbed by construction of GT-B-2 and a total of 8 acres would be permanently disturbed by construction of GT-B-2. Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on jurisdictional resources would be similar to those described under SF-B. However, given the linear nature of the GT-B-2 footprint, there is a greater risk that weeds could be introduced and spread over a large area. Implementation of Applicant Measure BIO-2 would reduce these impacts.

Local Policies or Ordinances Protecting Biological Resources

As described under SF-B, Alternative 2 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Red Bluff Substation B

Native Vegetation Communities

A total of 82 acres of creosote desert scrub and 9 acres of desert dry wash woodland would be permanently removed to construct Red Bluff Substation B (Table 4.3-10). Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on native vegetation communities would be similar to those described for SF-B.

Special Status Plant Species

Clearing and grading activities to construct the Red Bluff Substation B and all of its associated improvements would cause the direct loss of several foxtail cactus (with an estimated distribution of 3 acres) and several California ditaxis (CNPS List 2.2) (Table 4.3-11). Eight other species of cacti have been recorded in the Project locations as well (see Table 3.3-2) and would be directly impacted by the 114 acres of permanent disturbance caused by construction of Red Bluff Substation B. As for SF-B, although not observed during botanical surveys conducted for the Project, there is a chance that new special status plant species could emerge within Red Bluff Substation B prior to construction. If present, these species would be directly impacted as well. Implementation of Applicant Measures BIO-1 and BIO-3 through BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Similar direct and indirect impacts associated with dust and the potential introduction of invasive species would also result from construction of Red Bluff Substation B as for SF-B.

Sensitive Natural Communities

A total of 9 acres of desert dry wash woodland would be permanently removed to construct Red Bluff Substation B (Table 4.3-12). Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on desert dry wash woodland would be similar to those described for SF-B.

Jurisdictional Resources

A total of 34 acres of CDFG jurisdictional resources would be permanently removed to construct Red Bluff Substation B (Table 4.3-13). Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on these resources would be similar to those described for SF-B.

Local Policies or Ordinances Protecting Biological Resources

As described for SF-B, Alternative 2 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Summary of Construction Impacts

Native Vegetation Communities

Table 4.3-10 summarizes the construction impacts on creosote desert scrub and desert dry wash woodland under Alternative 2. In addition, without implementation of Applicant Measures or Mitigation Measures, dust generated during construction could directly adversely affect offsite native vegetation communities immediately adjacent to the Project. Direct impacts on desert dry wash woodland could occur downstream of the Alternative 2 site as a result of construction activities due to an increase in the rate, volume, and sediment load of storm water runoff. Indirect impacts on adjacent vegetation communities could also result due to potential introduction of invasive species into these areas. Implementation of the mitigation measures discussed above would reduce impacts.

Table 4.3-10
Summary of Construction Impacts on Vegetation Communities under Alternative 2

Project Feature	Solar Farm B	Gen-Tie Line B-2 Temporary Disturbance	Gen-Tie Line B-2 Permanent Disturbance	Red Bluff Substation B Temporary Disturbance	Red Bluff Substation B Permanent Disturbance	Total Temporary Disturbance	Total Permanent Disturbance	Grand Total
Creosote Desert Scrub	4,210	24	3	0	82	24	4,295	**4,319**
Desert Dry Wash Woodland	35	42	7	0	9	42	51	**93**
Disturbed Areas	0	1	1	0	0	1	1	**2**

Note: Numbers are shown in acres.

Special Status Plant Species

Table 4.3-11 summarizes the direct construction impacts on special status plant species known to occur in the disturbance footprint of Alternative 2. In addition, eight other cacti species are known to occur in this footprint and would be directly impacted by construction. Although not observed during botanical surveys for the Project, new special status plant species have the potential to emerge in this footprint and could be directly impacted by construction. Finally, direct and indirect impacts associated with dust and the potential introduction of invasive species could affect special status species immediately adjacent to the construction footprint of Alternative 2. Implementation of the mitigation measures discussed above would reduce impacts.

Table 4.3-11
Summary of Construction Impacts on Observed Special Status Plant Species under Alternative 2

Species	Solar Farm B	Gen-Tie Line B-2	Red Bluff Substation B	Total
Foxtail cactus (CNPS List 4.3)	3 (3 acres)	0	Several (3 acres)	**Several (6 acres)**
Emory's crucifixion thorn (CNPS List 2.3)	1	2	0	**3**
Las Animas colubrina (CNPS List 2.3)	0	0	0	**0**
California ditaxis (CNPS List 2.2)	0	Several	Several	**Several**
Desert unicorn plant (CNPS List 4.3)	0	1	0	**1**
Slender-spined althorn (CNPS List 2.2)	5	0	0	**5**

Note: Numbers of individuals present in the Project locations shown. Estimated acreage of distribution of foxtail cactus shown in parentheses.

Sensitive Natural Communities

Table 4.3-12 summarizes the direct construction impacts on desert dry wash woodland under Alternative 2. In addition, without implementation of Applicant Measures or Mitigation Measures, dust generated during construction could directly adversely affect offsite sensitive natural communities immediately adjacent to the Project. Direct impacts on desert dry wash woodland could occur downstream of the Alternative 2 site as a result of construction activities due to an increase in the rate, volume, and sediment load of storm water runoff. Indirect impacts on desert dry wash woodland located downstream of Alternative 2 and adjacent to Alternative 2 (Pinto Wash) could also result due to potential introduction of invasive species into these areas. Implementation of the mitigation measures discussed above would reduce impacts.

Table 4.3-12
Summary of Construction Impacts on Desert Dry Wash Woodland under Alternative 2

Species	Solar Farm B (acres)	Gen-Tie Line B-2 (acres)	Red Bluff Substation B (acres)	Total (acres)
Desert dry wash woodland temporary disturbance acreage	0	42	0	**42**
Desert dry wash woodland permanent disturbance acreage	35	7	9	**51**
Total (acres)	**35**	**49**	**9**	**93**

Jurisdictional Resources

Table 4.3-13 summarizes the direct construction impacts on CDFG jurisdictional resources under Alternative 2. Similar to impacts described in the Sensitive Natural Communities section, without implementation of Applicant Measures or Mitigation Measures, dust generated during construction could directly adversely affect offsite jurisdictional resources immediately adjacent to the Project. Direct impacts on jurisdictional resources could occur downstream of the Alternative 2 site as a result of construction activities due to an increase in the rate, volume, and sediment load of storm water runoff. Indirect impacts on desert dry wash woodland located downstream of Alternative 2 and adjacent to Alternative 2 (Pinto Wash) could also result due to potential introduction of invasive species into these areas. Implementation of the mitigation measures discussed above would reduce impacts.

Table 4.3-13
Summary of Construction Impacts on Jurisdictional Resources under Alternative 2

Species	Solar Farm B (acres)	Gen-Tie Line B-2 (acres)	Red Bluff Substation B (acres)	Total (acres)
Desert Dry Wash – In Creosote Desert Scrub Habitat*				
Temporary disturbance acreage	0	2	0	**2**
Permanent disturbance acreage	191	1	25	**217**
Subtotal (acres)	191	3	25	**219**
Riparian – Desert Dry Wash Woodland				
Temporary disturbance acreage	0	42	0	**42**
Permanent disturbance acreage	35	7	9	**51**
Subtotal (acres)	35	49	9	**93**
Total (acres)	**226**	**52**	**34**	**312**

Notes:
*Largely unvegetated desert dry washes found within creosote desert scrub habitat.

Local Policies or Ordinances Protecting Biological Resources

As described for SF-B, Alternative 2 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Operation and Maintenance

Solar Farm Layout B

The impacts resulting from operating and maintaining SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

Impacts associated with operation and maintenance of GT-B-2 would be similar to those described for SF-B above.

Red Bluff Substation B

Impacts associated with operation and maintenance of Red Bluff Substation B would be similar to those described for SF-B above.

Summary of Operation and Maintenance Impacts

Native Vegetation Communities

Installation of Alternative 2 would have a direct impact on the geomorphic conditions and hydrology of the site and would potentially alter surface flow in desert dry wash woodland immediately downstream of the site (AECOM 2010). The relatively diverse hydrological conditions at the site would be modified by ground preparation to result in a more uniform, consistent condition. Without proper mitigation measures, the site would likely support rapidly migrating shallow channels, approximately two feet deep or less. In some cases, smaller features would be interrupted and routed parallel to the disturbance eventually merging with a larger wash. Washes that are interrupted may become less active resulting in less surface flow, subsurface infiltration, scour, and sediment deposition. These factors may lead to adverse effects on downstream vegetation within desert dry wash woodlands. Other washes may become more active resulting in an increase in surface water flow. When graded areas are routinely maintained, distinctly different conditions may form on the upstream and downstream side of a site as well.

Proposed soil decompaction is expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Additional mitigation measures (e.g., rip rap or gabion siltation basins) discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology.

Dust generated during maintenance of access roads could directly adversely affect offsite native vegetation communities immediately adjacent to the Project. Implementation of dust control measures as discussed in Section 4.2, Air Resources, would be employed to reduce these impacts.

Finally, maintenance of access roads associated with Alternative 2 would have the potential to introduce invasive plant species into areas of creosote desert scrub and desert dry wash woodland immediately adjacent to the access roads. Construction vehicles and crews could inadvertently track in clinging seeds and/or parts of noxious weeds, thus facilitating their spread. Implementation of Applicant Measures BIO-2 would reduce these invasive species impacts

Special Status Plant Species

Maintenance of access roads associated with Alternative 2 would have the potential to introduce invasive plant species into areas immediately adjacent to the access roads. Construction vehicles and crews could inadvertently track in clinging seeds and/or parts of noxious weeds, thus facilitating their spread. Implementation of Applicant Measure BIO-2 would reduce these impacts.

Dust generated during maintenance of access roads could directly adversely affect offsite special status plant species immediately adjacent to the Project. Implementation of dust control measures as discussed in Section 4.2, Air Resources, would be employed to reduce these impacts.

Sensitive Natural Communities

Operation and maintenance impacts on sensitive natural communities would be similar to impacts on *Native Vegetation Communities* described above.

Jurisdictional Resources

Impacts associated with operation and maintenance of Alternative 2 would be similar to those described in the *Native Vegetation Communities* section above.

Local Policies or Ordinances Protecting Biological Resources

As described for SF-B, Alternative 2 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Decommissioning

Solar Farm Layout B

The impacts resulting from decommissioning SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

Impacts associated with decommissioning GT-B-2 would be similar to those described for SF-B above.

Red Bluff Substation B

Impacts associated with decommissioning Red Bluff Substation B would be similar to those described for SF-B above.

Summary of Decommissioning Impacts

Native Vegetation Communities

Decommissioning of the Alternative 2 facilities is anticipated to only directly impact areas previously disturbed by installation of the facilities. Removal of native vegetation communities is not anticipated for decommissioning activities. However, potential impacts on the rate, volume, and quality of storm water runoff and the potential introduction of dust and invasive species associated with decommissioning activities could have indirect effects on vegetation communities located immediately adjacent to Alternative 2 (for invasive species), similar to the impacts associated with construction of Alternative 2.Implementation of the dust control mitigation measures discussed in Section 4.2, Air Resources, would be employed to reduce these dust impacts. Implementation of a SWPPP during decommissioning activities as discussed in Section 4.17, Water Resources, would reduce these impacts. In addition, implementation of Applicant Measure BIO-2 would reduce the potential for the introduction of invasive species.

Special Status Plant Species

Removal of special status plant species is not anticipated under decommissioning activities for Alternative 2 and revegetation of the site would be beneficial to special status plant species. However, decommissioning activities could have direct and indirect impacts on special status plant species immediately adjacent to Alternative 2 facilities, similar to impacts associated with construction of Alternative 2, due to dust and the potential introduction of invasive species.

Implementation of the dust control mitigation measures discussed in Section 4.2, Air Resources, would be employed to reduce these dust impacts. Implementation of Applicant Measure BIO-2 would reduce the potential for the introduction of invasive species.

Sensitive Natural Communities

Decommissioning impacts on sensitive natural communities would be similar to impacts on *Native Vegetation Communities* described above.

Jurisdictional Resources

Impacts associated with decommissioning Alternative 2 would be similar to those described in the *Native Vegetation Communities* section above.

Local Policies or Ordinances Protecting Biological Resources

Because Alternative 2 was sited to avoid pristine or biologically sensitive areas, Alternative 2 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Summary of Combined Impacts for Alternative 2

In summary, construction of Alternative 2 would also result in the temporary disturbance of 24 acres of creosote desert scrub and 42 acres of desert dry wash woodland and permanent disturbance of 4,295 acres of creosote desert scrub and 51 acres of desert dry wash woodland. In addition, without implementation of Applicant Measures or Mitigation Measures, indirect impacts on desert dry wash woodland located downstream and immediately adjacent to the Alternative 2 site as a result of construction activities due to an increase in the rate, volume, and sediment load of storm water runoff. Direct and indirect impacts native vegetation communities located adjacent to Alternative 2 could also result due to dust and potential introduction of invasive species into these areas.

Construction of Alternative 2 would result in the direct loss of approximately 6 acres of foxtail cactus, two individuals each of the Emory's crucifixion thorn, several individuals of California ditaxis, one individual of the desert unicorn plant, and five individuals of the slender-spined allthorn.

In addition, eight other cacti species are known to occur in this footprint and would be directly impacted by construction. Although not observed during botanical surveys for the Project, new special status plant species have the potential to emerge in this footprint prior to construction and could be directly impacted by construction. Finally, direct and indirect impacts associated with dust and the potential introduction of invasive species could affect special status plant species immediately adjacent to the construction footprint of Alternative 2.

Construction of Alternative 2 would also result in the temporary disturbance of 42 acres of desert dry wash woodland and 44 acres of CDFG jurisdictional resources and permanent disturbance of 51 acres of desert dry wash woodland and 268 acres of CDFG jurisdictional resources. In addition, without implementation of Applicant Measures or Mitigation Measures, direct impacts on desert dry wash woodland and jurisdictional resources could occur downstream of the Alternative 2 site as a result of construction activities due to an increase in the rate, volume, and sediment load of storm water runoff. Direct and indirect impacts on desert dry wash woodland and jurisdictional resources located downstream of Alternative 2 and adjacent to Alternative 2 (Pinto Wash) could also result due to dust and potential introduction of invasive species into these areas.

While removal of vegetation is not anticipated during operation and maintenance and decommissioning of Alternative 2 facilities, changes in the site's geomorphic conditions and site hydrology could adversely affect the hydrology and water quality of desert dry wash woodland and jurisdictional resources located downstream of the site. In addition, maintenance of access roads and decommissioning activities have the potential to introduce dust and invasive species into areas immediately adjacent to the site which could adverse effects on special status plant species, sensitive natural communities, and jurisdictional resources.

Because Alternative 2 was sited to avoid pristine or biologically sensitive areas, Alternative 2 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Applicant Measures and Mitigation Measures

The mitigation measures would be the same as those described under Alternative 1.

CEQA Significance Determination

<u>*Solar Farm Layout B*</u>

The CEQA significance determination for SF-B would be the same as that discussed under Alternative 1.

<u>*Gen-Tie Line B-2*</u>

<u>*Impact BIO-1– Direct and Indirect Impacts to Native Vegetation Communities*</u>

The direct loss of 3 acres of creosote desert scrub and 7 acres of desert dry wash woodland and temporary disturbance of an additional 24 acres of creosote desert scrub and 42 acres of desert dry wash woodland would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the permanent loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored with native vegetation. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

Without implementation of applicant measures or mitigation measures, construction and operation and maintenance of GT-B-2 could affect the hydrology and quality of storm water runoff quality in desert dry wash woodland downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Due to the linear nature of GT-B-2, potential indirect construction, operation and maintenance, and decommissioning impacts on native vegetation communities from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operations and maintenance, and decommissioning activities could adversely affect nearby vegetation communities. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

<u>Impact BIO-2 – Direct and Indirect Impacts to Special Status Plant Species</u>

The direct loss of only two individual Emory's crucifixion thorns and one individual desert unicorn plant during construction of Red Bluff Substation B would not significantly affect the populations of these species, however, because they are special status species, impacts on these individuals would be considered significant. Construction would also directly impact several individuals of California ditaxis and where the species was found to be most concentrated during botanical surveys conducted for the Project (see Figure 3.3-3). Impacts on this species would be considered significant although the loss of these individuals is not expected to significantly affect the species' population. However, implementation of Applicant Measure BIO-1 would ensure that equivalent habitat for these species is preserved elsewhere which is expected to benefit the overall populations of these species. Applicant Measures BIO-3 and BIO-5 would ensure that any special status plant species found within the Project locations would be salvaged and transplanted if feasible. Applicant Measure BIO-4 would ensure that construction workers are aware of the protection measures for special status plant species.

Nevertheless, during construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger number of special status plant species than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

The loss of individual cacti among the eight cacti species that are present in the footprint of GT-B-2 would be considered significant. However, the loss of these individuals is not expected to affect the species' populations. In addition, implementation of Applicant Measures BIO-3 and BIO-5 would ensure that all individuals of these species are salvaged where feasible. Therefore, significant impacts would be reduced to less than significant levels.

Due to the linear nature of GT-B-2, potential construction, operation and maintenance, and decommissioning impacts on special status plant species from dust would be significant. However, implementation of dust control measures discussed in Section 4.2, Air Resources, would ensure that these impacts are less than significant.

In addition, due to the linear nature of GT-B-2, potential indirect construction, operation and maintenance, and decommissioning impacts on special status plant species from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-3 would ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Impact BIO-3 – Direct and Indirect Impacts to Sensitive Natural Communities

The direct loss of 7 acres of desert dry wash woodland and temporary disturbance of an additional 42 acres would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the permanent loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored with native vegetation. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

Without implementation of applicant measures or mitigation measures, construction and operation and maintenance of GT-B-2 could affect the hydrology and quality of storm water runoff quality in desert dry wash woodland downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Due to the linear nature of GT-B-2, potential indirect construction, operation and maintenance, and decommissioning impacts on desert dry wash woodland from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-3 would ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operations and maintenance, and decommissioning activities could adversely affect nearby sensitive natural communities. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-4 – Direct and Indirect Impacts to Jurisdictional Resources

The direct loss of 8 acres of jurisdictional resources and the temporary disturbance of an additional 44 acres would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the permanent loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

As discussed under *Sensitive Natural Communities* above, without implementation of applicant measures or mitigation measures, construction and operation and maintenance of GT-B-2 could affect the hydrology and quality of storm water runoff quality in jurisdictional resources downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within five percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Due to the linear nature of GT-B-2, potential indirect construction, operation and maintenance, and decommissioning impacts on jurisdictional resources from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operations and maintenance, and decommissioning activities could adversely affect nearby jurisdictional resources. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-5 – Local Policies or Ordinances Protecting Biological Resources

There would be no construction, operation and maintenance, or decommissioning impacts under criterion BIO-5.

Red Bluff Substation B

Impact BIO-1– Direct and Indirect Impacts to Native Vegetation Communities

The direct loss of 82 acres of creosote desert scrub and 9 acres of desert dry wash woodland would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of these vegetation communities is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

Without implementation of applicant measures or mitigation measures, construction and operation and maintenance of Red Bluff Substation B could affect the hydrology and quality of storm water runoff quality in desert dry wash woodland downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures (e.g., rip rap or gabion siltation basins) discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Potential indirect construction, operation and maintenance, and decommissioning impacts on adjacent vegetation communities from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Applicant Measure BIO-2 would ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operation and maintenance, and decommissioning activities could adversely affect nearby vegetation communities. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-2 – Direct and Indirect Impacts to Special Status Plant Species

Construction of Red Bluff Substation B would directly impact several individuals of foxtail cactus distributed over a three-acre area and would directly impact several individuals of California ditaxis which would be considered significant. As indicated in Figure 3.3-3, the largest concentration of foxtail cactus in the area is located outside of the footprint of Red Bluff Substation B. On the other hand, construction would directly impact several individuals of California ditaxis where the species was found to be most concentrated during botanical surveys conducted for the Project (see Figure 3.3-3). Although the loss of these individuals is not expected to significantly affect either of the species' populations, because these species are special status species, impacts on individuals would be considered significant. However, implementation of Applicant Measure BIO-1 would ensure that equivalent habitat for these species is preserved elsewhere which is expected to benefit the overall populations of these species. Applicant Measures BIO-3 and BIO-5 would ensure that any special status plant species found within the Project locations would be salvaged and transplanted if feasible. Applicant Measure BIO-4 would ensure that construction workers are aware of the protection measures for special status plant species.

Nevertheless, during construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger number of special status plant species than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

The loss of individual cacti among the eight cacti species that are present in the footprint of Red Bluff Substation B would be considered significant. However, the loss of these individuals is not expected to affect the species' populations. In addition, implementation of Applicant Measures BIO-3 and BIO-5 would ensure that all individuals of these species are salvaged where feasible. Therefore, significant impacts would be reduced to less than significant levels.

Potential construction, operation and maintenance, and decommissioning impacts on special status plant species from dust would be significant. However, implementation of dust control measures discussed in Section 4.2, Air Resources, would ensure that these impacts are less than significant.

In addition, potential indirect construction, operation and maintenance, and decommissioning impacts on special status plant species from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Impact BIO-3 – Direct and Indirect Impacts to Sensitive Natural Communities

The direct loss of 9 acres of desert dry wash woodland would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

Without implementation of applicant measures or mitigation measures, construction and operation and maintenance of Red Bluff Substation B could affect the hydrology and quality of storm water runoff quality in desert dry wash woodland downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Potential indirect construction, operation and maintenance, and decommissioning impacts on desert dry wash woodland from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operations and maintenance, and decommissioning activities could adversely affect nearby sensitive natural communities. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-4 – Direct and Indirect Impacts to Jurisdictional Resources

The direct loss of 34 acres of jurisdictional resources would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

As discussed under *Sensitive Natural Communities* above, without implementation of applicant measures or mitigation measures, construction and operation and maintenance of Red Bluff Substation B could affect the hydrology and quality of storm water runoff quality in jurisdictional resources downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Potential indirect construction, operation and maintenance, and decommissioning impacts on jurisdictional resources from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operations and maintenance, and decommissioning activities could adversely affect nearby jurisdictional resources. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-5 – Local Policies or Ordinances Protecting Biological Resources

There would be no construction, operation and maintenance, or decommissioning impacts under criterion BIO-5.

Unavoidable Adverse Effects

With implementation of mitigation measures, there would be no unavoidable significant impacts with Alternative 2.

4.3.5 Alternative 3 – Reduced Footprint Alternative

Construction

Solar Farm Layout C

Native Vegetation Communities

Clearing and grading activities for Project construction and infrastructure (such as access roads, staging areas, the footprint of the PV arrays, on-site substation, Visitor's Center, and O&M facility) would cause the direct loss of native vegetation within the SF-C boundaries. Vegetation communities affected would include creosote desert scrub and desert dry wash woodland. All surface disturbances would have permanent impacts. Total permanent disturbance would be approximately 3,045 acres. The creosote desert scrub community would receive the greatest impact (3,010 acres), as it is the dominant vegetation community within SF-C. Implementation of Applicant Measure BIO-1 and Mitigation Measure BIO-1 would reduce these impacts.

Dust generated during construction could directly adversely affect offsite native vegetation communities immediately adjacent to the Project by covering stomata and reducing photosynthetic or respiratory activity. Over time, this could cause lowered growth rates, increased susceptibility to disease, lowered reproductive capacity, or lowered ability to compete with nonnative species. Implementation of dust control measures as discussed in Section 4.2, Air Resources, would be employed to reduce these impacts.

In addition, grading activities during construction could also have direct effects on the water quality and hydrology of desert dry washes located downstream of SF-C during rain events. Specifically, without implementation of erosion control measures, site compaction and grading activities would result in an increase in the rate and volume and sediment load in storm water runoff traveling offsite. Implementation of a Storm Water Pollution Prevention Plan (SWPPP) during construction as discussed in Section 4.17, Water Resources, would be employed to reduce these impacts.

Finally, clearing and grading activities within SF-C would disturb soil and remove vegetation. This could indirectly affect adjacent native vegetation communities by creating opportunities for nonnative invasive weed species to colonize or spread into the disturbed areas and then possibly into undisturbed areas located adjacent to SF-C (including Pinto Wash). Construction vehicles and crews could inadvertently track in clinging seeds and/or parts of noxious weeds, thus facilitating their spread. Implementation of Applicant Measure BIO-2 would reduce these impacts.

Special Status Plant Species

As stated in Section 3.3, no federally-listed, state-listed, or proposed listed plant species have been observed in the Project locations and are not expected to be affected by the Project. Clearing and grading activities to construct SF-C would cause the direct loss of one individual foxtail cactus (CNPS List 4.3) (with an estimated distribution of one acre), one crucifixion thorn (CNPS List 2.3), and five individuals of the slender-spined allthorn (Table 4.3-15). Eight other species of cacti have been recorded in the Project locations as well (see Table 3.3-2) and would be directly impacted by the 3,045 acres of permanent disturbance caused by construction of SF-C. Although not observed during botanical surveys conducted for the Project, there is the potential for new special status species to emerge within SF-C prior to construction. If present, these species would be directly impacted as well. Implementing Applicant Measures BIO-1 and BIO-3 through BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Dust generated during construction could also directly adversely affect foxtail cactus and other cacti species located immediately adjacent to SF-C (see Figure 3.3-3) by covering stomata and reducing photosynthetic or respiratory activity. Over the proposed 26-month construction period, this could cause lowered growth rates, increased susceptibility to disease, lowered reproductive capacity, or lowered ability to compete with nonnative species. Implementation of the dust control mitigation measures discussed in Section 4.2, Air Resources, would be employed to reduce these impacts.

Finally, clearing and grading activities within SF-C would disturb soil and remove vegetation. This could indirectly affect special status plant species by creating opportunities for nonnative invasive weed species to colonize or spread into the disturbed areas and then possibly into undisturbed areas located adjacent to SF-C. Construction vehicles and crews could inadvertently track in clinging seeds and/or parts of noxious weeds, thus facilitating their spread. Implementing Applicant Measure BIO-2 would reduce these impacts.

Sensitive Natural Communities

A total of 35 acres of desert dry wash woodland would be permanently removed to construct SF-C (Table 4.3-16). Implementing Applicant Measure BIO-1 and Mitigation Measure BIO-1 would reduce these impacts.

In addition, grading activities during construction could also have direct effects on the water quality and hydrology of desert dry washes located downstream of SF-C during rain events. Specifically, without implementation of erosion control measures, site compaction and grading activities would result in an increase in the rate and volume and sediment load in storm water runoff traveling offsite. Implementation of a SWPPP during construction as discussed in Section 4.17, Water Resources, would be employed to reduce these impacts.

As described for *Native Vegetation Communities*, dust generated during construction could also directly adversely affect desert dry wash woodland located immediately adjacent to SF-C. Implementation of the dust control mitigation measures discussed in Section 4.2, Air Resources, would be employed to reduce these impacts.

Finally, clearing and grading activities within SF-B would disturb soil and remove vegetation. This could indirectly affect desert dry wash woodland by creating opportunities for nonnative invasive weed species to colonize or spread into the disturbed areas and then possibly into undisturbed areas located downstream and adjacent to SF-C (including Pinto Wash). Construction vehicles and crews could inadvertently track in clinging seeds and/or parts of noxious weeds, thus facilitating their spread. Implementation of Applicant Measure BIO-1 would reduce these impacts.

Jurisdictional Resources

Table 4.3-17 presents the acres of CDFG jurisdictional resources that would be temporarily and permanently disturbed as a result of construction of SF-C. Approximately 131 acres of desert dry washes occurring within creosote desert scrub habitat and 35 acres of desert dry wash woodland habitat subject to CDFG's Lake and Streambed Alteration Agreement Program jurisdiction would be permanently disturbed to construct the SF-C site. Implementation of Applicant Measure BIO-1 and Mitigation Measure BIO-1 would reduce these impacts.

No areas were found that meet the USACE technical criteria for being classified as wetlands. Areas mapped as desert dry wash occurring within creosote desert scrub habitat and desert dry wash woodland habitat did meet the technical criteria for other waters of the US due to the presence of an ordinary high water mark. However, following joint USACE/USEPA guidance resulting from relatively recent US Supreme Court decisions, these areas may be excluded from USACE jurisdiction because they are non-navigable intrastate waters, have not been used for navigation in the past, do not have a surface connection to a traditional navigable water, and have not been used and are not currently being used for interstate or foreign commerce. An official verification of this finding by the USACE is currently pending.

As described under the *Sensitive Natural Communities* section above, direct impacts to the water quality of jurisdictional resources located downstream of SF-C could result from construction activities due to an increase in the rate and volume and sediment load of storm water runoff traveling offsite. Implementation of a SWPPP during construction as discussed in Section 4.17, Water Resources, would be employed to reduce these impacts.

As described for *Native Vegetation Communities*, dust generated during construction could also directly adversely affect jurisdictional resources located immediately adjacent to SF-C. Implementation of the dust control mitigation measures discussed in Section 4.2, Air Resources, would be employed to reduce these impacts.

In addition, construction of SF-C would also have the potential to introduce invasive species into jurisdictional resources located downstream and adjacent to SF-B as well, as described above under the *Sensitive Natural Communities* section. Implementation of Applicant Measure BIO-2 would reduce these impacts.

Local Policies or Ordinances Protecting Biological Resources

Local open space Policy DCAP 10.1 of the Desert Center Area Plan of the County of Riverside's General Plan states the following:

> *DCAP 10.1 Encourage clustering of development for the preservation of contiguous open space.*

Because Alternative 3 was sited to avoid pristine or biologically sensitive areas, Alternative 3 is consistent with this policy.

Gen-Tie Line A-2

Native Vegetation Communities

A total of 34 acres of creosote desert scrub would be temporarily disturbed and a total of 23 acres of creosote desert scrub would be permanently removed to construct GT-A-2 (Table 4.3-14), for a total of 31.5 acres affected. Acreages of desert dry wash woodland that would be disturbed are discussed below under *Sensitive Natural Communities*. Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on native vegetation communities would be similar to those described under SF-C. However, given the linear nature of the GT-A-2 footprint, there is an even greater risk that weeds could be introduced and spread over a large area. Implementation of Applicant Measure BIO-2 would reduce these impacts.

Special Status Plant Species

Clearing and grading activities to construct GT-A-2 would cause the direct loss of several crucifixion thorn (CNPS List 2.3), and one desert unicorn plant (CNPS List 4.3) (Table 4.3-15). Eight other species of cacti have been recorded in the Project locations as well (see Table 3.3-2) and would be directly impacted by the 21.3 acres of permanent disturbance and 62.3 additional acres of temporary disturbance caused by construction of GT-A-2. Although not observed during botanical surveys conducted for the Project, there is the potential for new special status species to emerge within GT-A-2 prior to construction. If present, these species would be directly impacted as well. Implementation of Applicant Measures BIO-1 and BIO-3 through BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on special status plant species would be similar to those described for SF-C. However, given the linear nature of the GT-A-2 footprint, there is a greater risk that weeds could be introduced and spread over a large area. Implementation of Applicant Measure BIO-2 would reduce these impacts.

Sensitive Natural Communities

A total of 28 acres of desert dry wash woodland would be temporarily disturbed and a total of 6 acres of desert dry wash woodland would be permanently removed to construct GT-A-2 (Table 4.3-16), for a total of 34 acres affected. Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on desert dry wash woodland would be similar to those described for SF-C. However, given the linear nature of the GT-A-2 footprint, there is a greater risk that weeds could be introduced and spread over a large area. Implementation of Applicant Measure BIO-2 would reduce these impacts.

Jurisdictional Resources

Table 4.3-17 presents the acres of CDFG jurisdictional resources that would be temporarily and permanently disturbed as a result of construction of GT-A-2. A total of 44 acres of CDFG jurisdictional resources would be temporarily disturbed by construction of GT-A-2 and a total of 12 acres would be permanently disturbed by construction of GT-A-2. Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on jurisdictional resources would be similar to those described for SF-C. However, given the linear nature of the GT-A-2 footprint, there is a greater risk that weeds could be introduced and spread over a large area. Implementation of Applicant Measure BIO-2 would reduce these impacts.

Local Policies or Ordinances Protecting Biological Resources

As described under SF-C, Alternative 3 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Red Bluff Substation A

Native Vegetation Communities

A total of 105 acres of creosote desert scrub and 22 acres of desert dry wash woodland would be permanently removed to construct Red Bluff Substation A; while 21 acres of creosote bush scrub and 7 acres of desert dry wash woodland would be temporarily impacted (Table 4.3-8). Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on native vegetation communities would be similar to those described for SF-C.

Special Status Plant Species

Clearing and grading activities to construct the Red Bluff Substation A and all of its associated improvements (including Access Road 2 and the Telecommunications Site) would cause the direct loss of several foxtail cactus (with an estimated distribution of 4 acres), two Las Animas colubrina, and four California ditaxis (Table 4.3-15). Eight other species of cacti have been recorded in the Project locations as well (see Table 3.3-2) and would be directly impacted by the 145 acres of permanent disturbance caused by construction of Red Bluff Substation A. Although not observed during botanical surveys conducted for the Project, there is the potential for new special status species to emerge within Red Bluff Substation Aprior to construction. If present, these species would be directly impacted as well. Implementation of Applicant Measures BIO-1 and BIO-3 through BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Similar direct and indirect impacts associated with dust and the potential introduction of invasive species would also result from construction of Red Bluff Substation A as for SF-C.

Sensitive Natural Communities

A total of 7 acres of desert dry wash woodland would be temporarily disturbed and a total of 22 acres of desert dry wash woodland would be permanently removed to construct Red Bluff Substation A (Table 4.3-16), for a total of 29 acres affected (Table 4.3-16). Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on desert dry wash woodland would be similar to those described for SF-C.

Jurisdictional Resources

A total of 47 acres of CDFG jurisdictional resources would be permanently removed to construct Red Bluff Substation A under this Alternative and an additional 35 acres would be temporarily disturbed (Table 4.3-17). Implementation of Applicant Measures BIO-1 and BIO-5 and Mitigation Measure BIO-1 would reduce these impacts.

Other direct and indirect impacts on these resources would be similar to those described for SF-C.

Local Policies or Ordinances Protecting Biological Resources

As described for SF-C, Alternative 3 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Summary of Construction Impacts

Native Vegetation Communities

Table 4.3-14 summarizes the direct construction impacts on creosote desert scrub and desert dry wash woodland under Alternative 3. In addition, without implementation of Applicant Measures or Mitigation Measures, dust generated during construction could directly adversely affect offsite native vegetation communities immediately adjacent to the Project. Direct impacts on desert dry wash woodland could occur downstream of the Alternative 3 site as a result of construction activities due to an increase in the rate, volume, and sediment load of storm water runoff. Indirect impacts on adjacent vegetation communities could also result due to potential introduction of invasive species into these areas. Implementation of the mitigation measures discussed above would reduce impacts.

Table 4.3-14
Summary of Construction Impacts on Vegetation Communities under Alternative 3

Project Feature	Solar Farm C	Gen-Tie Line A-2 Temporary Disturbance	Gen-Tie Line A-2 Permanent Disturbance	Red Bluff Substation A Temporary Disturbance	Red Bluff Substation A Permanent Disturbance	Total Temporary Disturbance	Total Permanent Disturbance	Grand Total
Creosote Desert Scrub	3,010	34	6	21	105	55	3,121	**3,176**
Desert Dry Wash Woodland	35	28	10	7	22	35	67	**102**
Disturbed Areas	0	13	7	0	1	13	8	**21**

Note: Numbers are shown in acres.

Special Status Plant Species

Table 4.3-15 summarizes the direct construction impacts on special status plant species known to occur in the disturbance footprint of Alternative 3. In addition, eight other cacti species are known to occur in this footprint and would be directly impacted by construction. There is the potential for new special status species to emerge within this footprint prior to construction and could be directly impacted by construction. Finally, direct and indirect impacts associated with dust and the potential introduction of invasive species could affect special status species immediately adjacent to the construction footprint of Alternative 3. Implementation of the mitigation measures discussed above would reduce impacts.

Table 4.3-15
Summary of Construction Impacts on Observed Special Status Plant Species under Alternative 3

Species	Solar Farm C	Gen-Tie Line A-2	Red Bluff Substation A	Total
Foxtail cactus (CNPS List 4.3)	1 (1 acre)	0	Several (4 acres)	**Several (5 acres)**
Emory's crucifixion thorn (CNPS List 2.3)	1	Several	0	**Several**
Las Animas colubrina (CNPS List 2.3)	0	0	2	**2**
California ditaxis (CNPS List 2.2)	0	0	4	**4**
Desert unicorn plant (CNPS List 4.3)	0	1	0	**1**
Slender-spined althorn (CNPS List 2.2)	5	0	0	**5**

Note: Numbers of individuals present in the Project locations shown. Estimated acreage of distribution of foxtail cactus shown in parentheses.

Sensitive Natural Communities

Table 4.3-16 summarizes the direct construction impacts on desert dry wash woodland under Alternative 3. In addition, without implementation of Applicant Measures or Mitigation Measures, dust generated during construction could directly adversely affect offsite sensitive natural communities immediately adjacent to the Project. Direct impacts on desert dry wash woodland could occur downstream of the Alternative 3 site as a result of construction activities due to an increase in the rate, volume, and sediment load of storm water runoff. Indirect impacts on desert dry wash woodland located downstream of Alternative 3 and adjacent to Alternative 3 (Pinto Wash) could also result due to potential introduction of invasive species into these areas. Implementation of the mitigation measures discussed above would reduce impacts.

Table 4.3-16
Summary of Construction Impacts on Desert Dry Wash Woodland under Alternative 3

Species	Solar Farm C (acres)	Gen-Tie Line A-2 (acres)	Red Bluff Substation A (acres)	Total (acres)
Desert dry wash woodland temporary disturbance acreage	0	28	7	**35**
Desert dry wash woodland permanent disturbance acreage	35	10	22	**67**
Total (acres)	**35**	**38**	**29**	**102**

Jurisdictional Resources

Table 4.3-17 summarizes the direct construction impacts on CDFG jurisdictional resources under Alternative 3. Similar to impacts described under the *Sensitive Natural Communities* section, without implementation of Applicant Measures or Mitigation Measures, dust generated during construction could directly adversely affect offsite jurisdictional resources immediately adjacent to the Project. Direct impacts on jurisdictional resources could occur downstream of the Alternative 3 site as a result of construction activities due to an increase in the rate, volume, and sediment load of storm water runoff. Indirect impacts on desert dry wash woodland located downstream of Alternative 3 and adjacent to Alternative 3 (Pinto Wash) could also result due to potential introduction of invasive species into these areas. Implementation of the mitigation measures discussed above would reduce impacts.

Table 4.3-17
Summary of Construction Impacts on Jurisdictional Resources under Alternative 3

Species	Solar Farm C (acres)	Gen-Tie Line A-2 (acres)	Red Bluff Substation A (acres)	Total (acres)
Desert Dry Wash – In Creosote Desert Scrub Habitat*				
Temporary disturbance acreage	0	16	28	**44**
Permanent disturbance acreage	131	2	25	**158**
Subtotal (acres)	131	18	53	**202**
Riparian – Desert Dry Wash Woodland				
Temporary disturbance acreage	0	28	7	**35**
Permanent disturbance acreage	35	10	22	**67**
Subtotal (acres)	35	38	29	**102**
Total (acres)	**166**	**56**	**82**	**304**

Notes:
*Largely unvegetated desert dry washes found within creosote desert scrub habitat.

Local Policies or Ordinances Protecting Biological Resources

As described under SF-C, Alternative 3 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Operation and Maintenance

Solar Farm Layout C

Native Vegetation Communities

Installation of SF-C would have a direct impact on the geomorphic conditions and hydrology of the site and would potentially alter surface flow in desert dry wash woodland immediately downstream of the site (AECOM 2010). The relatively diverse hydrological conditions at the site would be modified by ground preparation to result in a more uniform, consistent condition. Without proper mitigation measures, the site would likely support rapidly migrating shallow channels, approximately two feet deep or less. In some cases, smaller features would be interrupted and routed parallel to the disturbance eventually merging with a larger wash. Washes that are interrupted may become less active resulting in less surface flow, subsurface infiltration, scour, and sediment deposition. These factors may lead to adverse effects on downstream vegetation within desert dry wash woodlands. Other washes may become more active resulting in an increase in surface water flow. When graded areas are routinely maintained, distinctly different conditions may form on the upstream and downstream side of a site as well.

Proposed soil decompaction is expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Additional mitigation measures (e.g., rip rap or gabion siltation basins) discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology.

Dust generated during maintenance of access roads could directly adversely affect offsite native vegetation communities immediately adjacent to the Project by covering stomata and reducing photosynthetic or respiratory activity. Over the proposed 26-month construction period, this could cause lowered growth rates, increased susceptibility to disease, lowered reproductive capacity, or lowered ability to compete with nonnative species. Implementation of dust control measures as discussed in Section 4.2, Air Resources, would be employed to reduce these impacts.

Finally, maintenance of access roads associated with SF-C would have the potential to introduce invasive plant species into areas of creosote desert scrub and desert dry wash woodland immediately adjacent to the access roads. Construction vehicles and crews could inadvertently track in clinging seeds and/or parts of noxious weeds, thus facilitating their spread. Implementation of Applicant Measure BIO-2 would reduce these invasive species impacts

Special Status Plant Species

Maintenance of access roads associated with SF-C would have the potential to introduce invasive plant species into areas immediately adjacent to the access roads. Construction vehicles and crews could inadvertently track in clinging seeds and/or parts of noxious weeds, thus facilitating their spread. Implementation of Applicant Measure BIO-2 would reduce these impacts.

Dust generated during maintenance of access roads could directly adversely affect offsite special status plant species. Implementation of dust control measures as discussed in Section 4.2, Air Resources, would be employed to reduce these impacts.

Sensitive Natural Communities

Impacts associated with operation and maintenance of SF-C would be similar to those described in the *Native Vegetation Communities* section above.

Jurisdictional Resources

Impacts associated with operation and maintenance of SF-C would be similar to those described in the *Native Vegetation Communities* section above.

Local Policies or Ordinances Protecting Biological Resources

Because Alternative 3 was sited to avoid pristine or biologically sensitive areas, Alternative 3 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Gen-Tie Line A-2

Impacts associated with operation and maintenance of GT-A-2 would be similar to those described for SF-C above.

Red Bluff Substation A

Impacts associated with operation and maintenance of Red Bluff Substation A would be similar to those described under SF-C above.

Summary of Operation and Maintenance Impacts

Native Vegetation Communities

Installation of Alternative 3 would have a direct impact on the geomorphic conditions and hydrology of the site and would potentially alter surface flow in desert dry wash woodland immediately downstream of the site (AECOM 2010). The relatively diverse hydrological conditions at the site would be modified by ground preparation to result in a more uniform, consistent condition. Without proper mitigation measures, the site would likely support rapidly migrating shallow channels, approximately two feet deep or less. In some cases, smaller features would be interrupted and routed parallel to the disturbance eventually merging with a larger wash. Washes that are interrupted may become less active resulting in less surface flow, subsurface infiltration, scour, and sediment deposition. These factors may lead to adverse effects on downstream vegetation within desert dry wash woodlands. Other washes may become more active resulting in an increase in surface water flow. When graded areas are routinely maintained, distinctly different conditions may form on the upstream and downstream side of a site as well.

Proposed soil decompaction is expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Additional mitigation measures (e.g., rip rap or gabion siltation basins) discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology.

Dust generated during maintenance of access roads could directly adversely affect offsite native vegetation communities. Implementation of dust control measures as discussed in Section 4.2, Air Resources, would be employed to reduce these impacts. Finally, maintenance of access roads associated with Alternative 3 would have the potential to introduce invasive plant species into areas of creosote desert scrub and desert dry wash woodland immediately adjacent to the access roads. Construction vehicles and crews could inadvertently track in clinging seeds and/or parts of noxious weeds, thus facilitating their spread. Implementation of Mitigation Measures BIO-2 and BIO-3 would reduce these invasive species impacts

Special Status Plant Species

Maintenance of access roads associated with Alternative 3 would have the potential to introduce invasive plant species into areas immediately adjacent to the access roads. Construction vehicles and crews could inadvertently track in clinging seeds and/or parts of noxious weeds, thus facilitating their spread. Implementation of Applicant Measure BIO-2 would reduce these impacts.

Dust generated during maintenance of access roads could directly adversely affect offsite special status plant species. Implementation of dust control measures as discussed in Section 4.2, Air Resources, would be employed to reduce these impacts.

Sensitive Natural Communities

Impacts associated with operation and maintenance of Alternative 3 would be similar to those described in the *Native Vegetation Communities* section above.

Jurisdictional Resources

Impacts associated with operation and maintenance of Alternative 3 would be similar to those described under *Native Vegetation Communities* above.

Local Policies or Ordinances Protecting Biological Resources

As described for SF-C, Alternative 3 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Decommissioning

Solar Farm Layout C

Native Vegetation Communities

Decommissioning of the SF-C facilities is anticipated to only directly impact areas previously disturbed by installation of the facilities. Removal of native vegetation communities is not anticipated for decommissioning activities. However, potential impacts on the rate, volume, and quality of storm water runoff and the potential introduction of dust and invasive species associated with decommissioning activities could have direct and indirect effects on vegetation communities located immediately adjacent to SF-C (for invasive species), similar to the impacts associated with construction of SF-C.

Implementation of the dust control mitigation measures discussed in Section 4.2, Air Resources, would be employed to reduce these dust impacts. Implementation of a SWPPP during decommissioning activities as discussed in Section 4.17, Water Resources, would reduce these impacts. In addition, implementation of Applicant Measure BIO-2 would reduce the potential for the introduction of invasive species.

Special Status Plant Species

Decommissioning of the SF-C facilities is anticipated to only directly impact areas previously disturbed by installation of the facilities. Removal of special status plant species is not anticipated for decommissioning activities. In addition, revegetation of the site would benefit special status plant species. However, dust impacts and the potential introduction of invasive species associated with decommissioning activities could have direct and indirect effects on special status plant species located immediately adjacent to SF-C, similar to the impacts associated with construction of SF-C.

Implementation of the dust control mitigation measures discussed in Section 4.2, Air Resources, would be employed to reduce these dust impacts. Implementation of Applicant Measure BIO-2 would reduce the potential for the introduction of invasive species.

Sensitive Natural Communities

Impacts associated with decommissioning SF-C would be similar to those described in the *Native Vegetation Communities* section above.

Jurisdictional Resources

Impacts associated with decommissioning SF-C would be similar to those described in the *Native Vegetation Communities* section above.

Local Policies or Ordinances Protecting Biological Resources

Because Alternative 3 was sited to avoid pristine or biologically sensitive areas, Alternative 3 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Gen-Tie Line A-2

Impacts associated with decommissioning GT-A-2 would be similar to those described for SF-C above.

Red Bluff Substation A

Impacts associated with decommissioning Red Bluff Substation A would be similar to those described for SF-C above.

Summary of Decommissioning Impacts

Native Vegetation Communities

Decommissioning of the Alternative 3 facilities is anticipated to only directly impact areas previously disturbed by installation of the facilities. Removal of native vegetation communities is not anticipated for decommissioning activities. However, potential impacts on the rate, volume, and quality of storm water runoff and the potential introduction of dust and invasive species associated with decommissioning activities could have direct and indirect effects on vegetation communities located immediately adjacent to Alternative 3 (for invasive species), similar to the impacts associated with construction of Alternative 3.

Implementation of the dust control mitigation measures discussed in Section 4.2, Air Resources, would be employed to reduce these dust impacts. Implementation of a SWPPP during decommissioning activities as discussed in Section 4.17, Water Resources, would reduce these impacts. In addition, implementation of Applicant Measure BIO-2 would reduce the potential for the introduction of invasive species.

Special Status Plant Species

Removal of special status plant species is not anticipated under decommissioning activities for Alternative 3 and revegetation of the site would be beneficial to special status plant species. However, decommissioning activities could have direct and indirect impacts on special status plant species immediately adjacent to Alternative 3 facilities, similar to impacts associated with construction of Alternative 3, due to dust and the potential introduction of invasive species.

Implementation of the dust control mitigation measures discussed in Section 4.2, Air Resources, would be employed to reduce these dust impacts. Implementation of Applicant Measure BIO-2 would reduce the potential for the introduction of invasive species.

Sensitive Natural Communities

Impacts associated with decommissioning Alternative 3 would be similar to those described in the *Native Vegetation Communities* section above.

Jurisdictional Resources

Impacts associated with decommissioning Alternative 3 would be similar to those described in the *Native Vegetation Communities* section above.

Local Policies or Ordinances Protecting Biological Resources

Because Alternative 3 was sited to avoid pristine or biologically sensitive areas, Alternative 3 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Summary of Combined Impacts for Alternative 3

In summary, construction of Alternative 3 would also result in the temporary disturbance of 55 acres of creosote desert scrub and 35 acres of desert dry wash woodland and permanent disturbance of 3,121 acres of creosote desert scrub and 67 acres of desert dry wash woodland. In addition, without implementation of Applicant Measures or Mitigation Measures, direct impacts on desert dry wash woodland located downstream and immediately adjacent to the Alternative 3 site could occur as a result of construction activities due to an increase in the rate, volume, and sediment load of storm water runoff. Direct and indirect impacts native vegetation communities located adjacent to Alternative 3 could also result due to dust and potential introduction of invasive species into these areas.

Construction of Alternative 3 would result in the direct loss of approximately 5 acres of foxtail cactus, several individuals each of the Emory's crucifixion thorn, two Las Animas colubrina, four

California ditaxis, one individual of the desert unicorn plant, and five individuals of the slender-spined allthorn. In addition, eight other cacti species are known to occur in this footprint and would be directly impacted by construction. Although not observed during botanical surveys for the Project, new special status species have the potential to emerge in this footprint prior to construction and could be directly impacted by construction. Finally, direct and indirect impacts associated with dust and the potential introduction of invasive species could affect special status plant species immediately adjacent to the construction footprint of Alternative 3.

Construction of Alternative 3 would also result in the temporary disturbance of 35 acres of desert dry wash woodland and 79 acres of CDFG jurisdictional resources and permanent disturbance of 67 acres of desert dry wash woodland and 225 acres of CDFG jurisdictional resources. In addition, without implementation of Applicant Measures or Mitigation Measures, direct impacts on desert dry wash woodland and jurisdictional resources could occur downstream of the Alternative 3 site as a result of construction activities due to an increase in the rate, volume, and sediment load of storm water runoff. Direct and indirect impacts on desert dry wash woodland and jurisdictional resources located downstream of Alternative 3 and adjacent to Alternative 3 (Pinto Wash) could also result due to potential introduction of invasive species into these areas.

While removal of vegetation is not anticipated during operation and maintenance and decommissioning of Alternative 3 facilities, changes in the site's geomorphic conditions and site hydrology could adversely affect the hydrology and water quality of desert dry wash woodland and jurisdictional resources located downstream of the site. In addition, maintenance of access roads and decommissioning activities have the potential to introduce dust and invasive species into areas immediately adjacent to the site which could adverse effects on special status plant species, sensitive natural communities, and jurisdictional resources.

Because Alternative 3 was sited to avoid pristine or biologically sensitive areas, Alternative 3 would be consistent with the open space protection policies of the County of Riverside's General Plan.

Applicant Measures and Mitigation Measures

The mitigation measures would be the same as those described under Alternative 1.

CEQA Significance Determination

Solar Farm Layout C

Impact BIO-1– Direct and Indirect Impacts to Native Vegetation Communities

The direct loss of 3,010 acres of creosote desert scrub and 35 acres of desert dry wash woodland would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of these vegetation communities is adequately compensated for and equivalent habitat would be protected offsite. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

Without implementation of applicant measures or mitigation measures, construction and operation and maintenance of SF-C could affect the hydrology and quality of storm water runoff quality in desert dry wash woodland downstream of SF-C. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures (e.g., rip rap or gabion siltation basins) discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Due to the large size of SF-C, potential indirect construction, operation and maintenance, and decommissioning impacts on adjacent vegetation communities from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Applicant Measure BIO-2 would ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operation and maintenance, and decommissioning activities could adversely affect nearby vegetation communities. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-2 – Direct and Indirect Impacts to Special Status Plant Species

The direct loss of only one individual foxtail cactus, one individual Emory's crucifixion thorn, and five individuals of the slender-spined allthorn during construction of SF-C would not significantly affect the populations of these species, however, because they are special status species, impacts on these individuals would be considered significant. As indicated in Figure 3.3-3, the location of SF-C was designed to avoid the largest concentrations of foxtail cactus in the area, the most prevalent special status plant species in the Project Study Area. In addition, implementation of Applicant Measure BIO-1 would ensure that equivalent habitat for these species is preserved elsewhere which is expected to benefit the overall populations of these species. Applicant Measures BIO-3 and BIO-5 would ensure that any special status plant species found within the Project locations would be salvaged and transplanted if feasible. Applicant Measure BIO-4 would ensure that construction workers are aware of the protection measures for special status plant species.

Nevertheless, during construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger number of special status plant species than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

The loss of individual cacti among the eight cacti species that are present in the footprint of SF-C would be considered significant. However, the loss of these individuals is not expected to affect the species' populations. In addition, implementation of Applicant Measures BIO-3 and BIO-5 would ensure that all individuals of these species are salvaged where feasible. Therefore, significant impacts would be reduced to less than significant levels.

Potential construction, operation and maintenance, and decommissioning impacts on special status plant species from dust would be significant. However, implementation of dust control measures discussed in Section 4.2, Air Resources, would ensure that these impacts are less than significant.

In addition, potential indirect construction, operation and maintenance, and decommissioning impacts on special status plant species from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

<u>Impact BIO-3 – Direct and Indirect Impacts to Sensitive Natural Communities</u>

The direct loss of 35 acres of desert dry wash woodland would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

Without implementation of applicant measures or mitigation measures, construction and operation and maintenance of SF-C could affect the hydrology and quality of storm water runoff quality in desert dry wash woodland downstream of SF-C. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within five percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures (e.g., rip rap or gabion siltation basins) discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Potential indirect construction, operation and maintenance, and decommissioning impacts on desert dry wash woodland from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-3 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operation and maintenance, and decommissioning activities could adversely affect nearby sensitive natural communities. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-4 – Direct and Indirect Impacts to Jurisdictional Resources

The direct loss of 166 acres of jurisdictional resources would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-4 would ensure that the loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

As discussed under *Sensitive Natural Communities* above, without implementation of applicant measures and mitigation measures, construction and operation and maintenance of SF-C could affect the hydrology and quality of storm water runoff quality in jurisdictional resources downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within five percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures (e.g., rip rap or gabion siltation basins) discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Potential indirect construction, operation and maintenance, and decommissioning impacts on jurisdictional resources from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operation and maintenance, and decommissioning activities could adversely affect nearby jurisdictional resources. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-5 – Local Policies or Ordinances Protecting Biological Resources

There would be no construction, operation and maintenance, or decommissioning impacts under criterion BIO-5.

Gen-Tie Line A-2

Impact BIO-1– Direct and Indirect Impacts to Native Vegetation Communities

The direct loss of 23 acres of creosote desert scrub and 6 acres of desert dry wash woodland and temporary disturbance of an additional 34 acres of creosote desert scrub and 28 acres of desert dry wash woodland would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the permanent loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored with native vegetation. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

Without implementation of applicant measures or mitigation measures, construction and operation and maintenance of GT-A-2 could affect the hydrology and quality of storm water runoff quality in desert dry wash woodland downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Due to the linear nature of GT-A-2, potential indirect construction, operation and maintenance, and decommissioning impacts on native vegetation communities from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operations and maintenance, and decommissioning activities could adversely affect nearby vegetation communities. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-2 – Direct and Indirect Impacts to Special Status Plant Species

The direct loss of only one individual desert unicorn plant during construction of GT-A-2 would not significantly affect the population of this species. Construction of GT-A-2 would directly impact several individuals of Emory's crucifixion thorn. However, the loss of these individuals is not expected to significantly affect the species' population either. Nevertheless, because these species are special status species, impacts on these individuals would be considered significant. Implementation of Applicant Measure BIO-1 would ensure that equivalent habitat for these species is preserved elsewhere which is expected to benefit the overall populations of these species. Applicant Measures BIO-3 and BIO-5 would ensure that any special status plant species found within the Project locations would be salvaged and transplanted if feasible. Applicant Measure BIO-4 would ensure that construction workers are aware of the protection measures for special status plant species.

Nevertheless, during construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger number of special status plant species than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

The loss of individual cacti among the eight cacti species that are present in the footprint of GT-A-2 would be considered significant. However, the loss of these individuals is not expected to affect the species' populations. In addition, implementation of Applicant Measures BIO-3 and BIO-5 would ensure that all individuals of these species are salvaged where feasible. Therefore, significant impacts would be reduced to less than significant levels.

Due to the linear nature of GT-A-2, potential indirect construction, operation and maintenance, and decommissioning impacts on special status plant species from dust would be significant. However, implementation of dust control measures discussed in Section 4.2, Air Resources, would ensure that these impacts are less than significant.

In addition, due to the linear nature of GT-A-2, potential indirect construction, operation and maintenance, and decommissioning impacts on special status plant species from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of these measures, impacts would be reduced to less than significant levels.

Impact BIO-3 – Direct and Indirect Impacts to Sensitive Natural Communities

The direct loss of 6 acres of desert dry wash woodland and temporary disturbance of an additional 28 acres would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the permanent loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored with native vegetation. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

Without implementation of applicant measures or mitigation measures, construction and operation and maintenance of GT-A-2 could affect the hydrology and quality of storm water runoff quality in desert dry wash woodland downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within five percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Due to the linear nature of GT-A-2, potential indirect construction, operation and maintenance, and decommissioning impacts on desert dry wash woodland from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operation and maintenance, and decommissioning activities could adversely affect nearby sensitive natural communities. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-4 – Direct and Indirect Impacts to Jurisdictional Resources

The direct loss of 12 acres of jurisdictional resources and the temporary disturbance of an additional 44 acres would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the permanent loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

As discussed under *Sensitive Natural Communities* above, without implementation of applicant measures or mitigation measures, construction and operation and maintenance of GT-A-2 could affect the hydrology and quality of storm water runoff quality in jurisdictional resources downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Due to the linear nature of GT-A-2, potential indirect construction, operation and maintenance, and decommissioning impacts on jurisdictional resources from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operation and maintenance, and decommissioning activities could adversely affect nearby jurisdictional resources. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-5 – Local Policies or Ordinances Protecting Biological Resources

There would be no construction, operation and maintenance, or decommissioning impacts under criterion BIO-5.

Red Bluff Substation A

Impact BIO-1– Direct and Indirect Impacts to Native Vegetation Communities

The direct loss of 105 acres of creosote desert scrub and 22 acres of desert dry wash woodland, and temporary disturbance of 21 acres of creosote bush scrub and 7 acres of desert wash woodland would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of these vegetation communities is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

Without implementation of applicant measures or mitigation measures, construction and operation and maintenance of Red Bluff Substation A could affect the hydrology and quality of storm water runoff quality in desert dry wash woodland downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within 5 percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures (e.g., rip rap or gabion siltation basins) discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Potential indirect construction, operation and maintenance, and decommissioning impacts on adjacent vegetation communities from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operation and maintenance, and decommissioning activities could adversely affect nearby vegetation communities. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-2 – Direct and Indirect Impacts to Special Status Plant Species

The direct loss of two individual Las Animas colubrina and four California ditaxis during construction of Red Bluff Substation A would not significantly affect the population of these species. Construction would also directly impact several individuals of foxtail cactus distributed over a four-acre area. However, as indicated in Figure 3.3-3, the largest concentration of foxtail cactus in the area is located outside of the footprint of Red Bluff Substation A. Therefore, the direct loss of these individuals is not anticipated to significantly affect the populations of these species. Nevertheless, because these species are special status species, impacts on these individuals would be considered significant. Implementation of Applicant Measure BIO-1 would ensure that equivalent habitat for these species is preserved elsewhere which is expected to benefit the overall populations of these species. Applicant Measures BIO-3 and BIO-5 would ensure that any special status plant species found within the Project locations would be salvaged and transplanted if feasible. Applicant Measure BIO-4 would ensure that construction workers are aware of the protection measures for special status plant species.

Nevertheless, during construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger number of special status plant species than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

The loss of individual cacti among the eight cacti species that are present in the footprint of Red Bluff Substation A would be considered significant. However, the loss of these individuals is not expected to affect the species' populations. In addition, implementation of Applicant Measures BIO-3 and BIO-5 would ensure that all individuals of these species are salvaged where feasible. Therefore, significant impacts would be reduced to less than significant levels.

Potential construction, operation and maintenance, and decommissioning impacts on special status plant species from dust would be significant. However, implementation of dust control measures discussed in Section 4.2, Air Resources, would ensure that these impacts are less than significant.

In addition, potential indirect construction, operation and maintenance, and decommissioning impacts on special status plant species from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Impact BIO-3 – Direct and Indirect Impacts to Sensitive Natural Communities

The direct loss of 22 acres of desert dry wash woodland and temporary disturbance of an additional 7 acres would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

Without implementation of applicant measures or mitigation measures, construction and operation and maintenance of Red Bluff Substation A could affect the hydrology and quality of storm water runoff quality in desert dry wash woodland downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within five percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Potential indirect construction, operation and maintenance, and decommissioning impacts on desert dry wash woodland from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to: prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operation and maintenance, and decommissioning activities could adversely affect nearby native vegetation communities. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-4 – Direct and Indirect Impacts to Jurisdictional Resources

The direct loss of 47 acres of jurisdictional resources and temporary disturbance of an additional 35 acres of jurisdictional resources would be a significant impact. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. In addition, implementation of Applicant Measure BIO-5 would ensure that areas of temporary disturbance are adequately restored. During construction, there remains the risk that construction equipment could stray outside of the staked and flagged areas and disturb a larger area than anticipated. Therefore, impacts would remain significant even after implementation of applicant measures. However, Mitigation Measure BIO-1 requires construction monitoring during all construction activities to ensure that construction activities remain within the staked and flagged areas. With implementation of this mitigation measure, impacts would be reduced to less than significant levels.

As discussed under *Sensitive Natural Communities* above, without implementation of applicant measures or mitigation measures, construction and operation and maintenance of Red Bluff Substation A could affect the hydrology and quality of storm water runoff quality in jurisdictional resources downstream. However, implementation of a SWPPP during construction, as discussed in Section 4.17, Water Resources, would reduce construction impacts. Proposed soil decompaction is also expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within five percent of pre-development hydraulic conditions (AECOM 2010). Nevertheless, impacts would remain significant without additional control of the site's hydrology. Implementation of additional mitigation measures discussed in Section 4.17, Water Resources, would be employed to further reduce the magnitude of change in onsite and offsite hydrology. As a result, implementation of these measures would bring operation and maintenance impacts to less than significant levels.

Potential indirect construction, operation and maintenance, and decommissioning impacts on jurisdictional resources from the potential introduction of invasive species into adjacent areas would be significant. Implementation of the *Invasive Weed Management Plan* contained in Appendix H and required in Applicant Measure BIO-2, would ensure that adequate steps are taken to prevent the spread of invasive species, to monitor for invasives, and to remove invasives if observed. Finally, Applicant Measure BIO-2 would also ensure that construction personnel are adequately trained on how to prevent the spread of invasive species. With implementation of this measure, impacts would be reduced to less than significant levels.

Finally, dust from construction, operation and maintenance, and decommissioning activities could adversely affect nearby jurisdictional resources. However, dust control measures required in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

Impact BIO-5 – Local Policies or Ordinances Protecting Biological Resources

There would be no construction, operation and maintenance, or decommissioning impacts under criterion BIO-5.

Unavoidable Adverse Effects

With implementation of mitigation measures, there would be no unavoidable significant impacts with Alternative 3.

4.3.6 Alternative 4 – No Issuance of a Right-of-Way Grant (No Action)

Under this alternative, the proposed Project (including the Solar Farm, Gen-Tie Line, and Red Bluff Substation) would not be approved by the BLM and BLM would not amend the CDCA Plan. As a result, no 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 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 new ground disturbance. As a result, none of the impacts on biological resources from construction or operation of the Proposed Project would occur. However, the land on which the Project is proposed would become available to other uses that are consistent with BLM's land use plan, including another solar project requiring a land use plan amendment. In addition, in the absence of this Project, other renewable energy projects may be constructed to meet state and federal mandates, and those projects would have similar impacts on this or in other locations.

4.3.7 Alternative 5 – No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Exclude Solar Energy Development on the Site (No Action with Plan Amendment)

Under this alternative, the proposed Project (including the Solar Farm, Gen-Tie Line, and Red Bluff Substation) 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, 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 the CDCA Plan would be amended to make the area unavailable for future solar energy development, 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 new ground disturbance. As a result, the biological resources of the site are not expected to change noticeably from existing conditions and, as such, this No Action Alternative would have no adverse impact to biological resources at the site in the long term. However, in the absence of this Project, other renewable energy projects may be constructed to meet state and federal mandates, and those projects would have similar impacts on this or in other locations.

4.3.8 Alternative 6 – No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Allow Solar Development on the Site (No Action with Plan Amendment)

Under this alternative, the proposed Project (including the Solar Farm, Gen-Tei Line, and Red Bluff Substation) would not be approved by the BLM and the BLM would amend the CDCA Plan to allow for other solar projects on the site. As a result, it is possible that another solar energy project could be constructed on the Project site.

Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. As a result, biological impacts would result from the construction and operation of the solar technology and resulting ground disturbance and would likely be similar to the biological impacts from the Proposed Project. Different solar technologies require different amounts of grading; however, it is expected that all solar technologies would require grading and maintenance. As such, this No Action Alternative could result in biological impacts similar to the impacts under the Proposed Project.

4.3.9 Cumulative Impacts

Geographic Scope

The majority of this cumulative impact 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 in general 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, encompasses over 5 million acres and hosts 60 sensitive plant and animal species.

The Proposed 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.

Regional Overview

This overview of regional impacts is followed by a more detailed discussion of the effects of past, present, and future projects to biological resources of the Project vicinity.

The California Desert remained a desolate area for the first few decades of the 20th century. Disturbance was more or less restricted to highways, railroad, and utility corridors, scattered mining, and sheep grazing. In the 1940s, several large military reservations were created for military training, testing, and staging areas. The deserts of eastern Riverside County comprise 40 percent of the County's land area but less than one percent of its 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; most of the lands are administered by BLM.

Populations of many of the desert's sensitive plants were considered relatively stable until recently, as the push for renewable energy development has placed many populations at risk. Energy providers have submitted project applications that would collectively cover more than one million acres of the region. However, renewable energy development has its own ecological consequences and portions of the Sonoran and Mojave deserts of California are bearing the brunt of these effects. Poorly planned development could contribute to habitat loss and fragmentation and barriers to gene flow. Although project permitting and regional planning evaluate basic environmental impacts of such projects, rarely do they consider impacts on connectivity, conduct thorough cumulative effects analyses, or implement regional monitoring of effects or the efficacy of mitigation.

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.

The introduction of nonnative plant species has also contributed to habitat degradation, population declines, and range contractions for many special status plant species (Boarman 2002a). 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. In the context of this large-scale habitat loss, the Desert Sunlight Solar Farm Project would contribute, at least incrementally, to the cumulative loss and degradation of habitat for desert plants in the Chuckwalla Valley and NECO planning area.

Existing Cumulative Conditions

Details of the vegetation resources within the cumulative study area are summarized here and provided more fully in Section 3.3, Vegetation . The NECO planning area is located mostly within 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, desert wash, and sand dunes. The cumulative impacts area also includes several dry lake beds, numerous drainages, and areas relatively devoid of native vegetation including developed areas, paved roads, highways, access roads, and other disturbed areas. Invasive and noxious weed species have been identified throughout the cumulative impacts area. The area supports habitat for, and populations of, numerous special status plant species, as described in Section 3.3.

Past, Present, and Reasonably Foreseeable Future Projects

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. Ongoing development in the area is dominated by renewable energy development. 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 several transmission line and non-renewable energy development, as well as residential and commercial development.

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 area are considered for this analysis. This would include non-renewable energy, transmission lines, wind power, and solar power projects.

Cumulative Impact Analysis

Impact BIO-1– Direct and Indirect Impacts to Native Vegetation Communities

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. Table 4.3-18 presents the total acreage of vegetation communities within the NECO planning area the cumulative impacts on each community type from existing projects and foreseeable future projects. These acreages were compiled for the Blythe Solar Power Project Final EIS (BLM 2010a) using the NECO plant communities dataset which is based on the 1996 California Gap Analysis Project conducted by the Biogeography Lab at the University of California, Santa Barbara and coordinated through the USGS Biological Resources Division.

The total projected loss of 6.2 percent of the Sonoran creosote bush scrub and 7.5 percent of the desert dry wash woodland habitat in the NECO planning area from existing and foreseeable future projects would constitute a significant cumulative impact. As shown in Table 4.3-18, implementation of Alternatives 1, 2, and 3 would contribute between 1.4 and 1.9 percent (of impacts resulting from future projects) to this cumulative impact on Sonoran creosote bush scrub and between 0.20 to 0.21 percent to the cumulative impact on desert dry wash woodland. Due to the sensitivity of these vegetation communities, Alternatives 1, 2, and 3 would have a considerable contribution to cumulative impacts on these resources. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of both of these vegetation communities is adequately compensated for and equivalent habitat would be protected offsite. Therefore, with implementation of this measure, the Project's contribution to cumulative impacts would be reduced to less than significant levels.

Table 4.3-18
Summary of Cumulative Impacts on Native Vegetation Communities

Vegetation Community[a]	Total Vegetation Communities in the NECO Planning Area[a]	Impacts to Vegetation Community from Existing Projects (percent of vegetation community in NECO planning area)[b]	Impacts to Vegetation Community from Foreseeable Future Projects (percent of vegetation community in NECO planning area)[c]	Contribution of Alternative 1 to Future Cumulative Impacts (percent of total impacts from future projects)	Contribution of Alternative 2 to Future Cumulative Impacts (percent of total impacts from future projects)	Contribution of Alternative 3 to Future Cumulative Impacts (percent of total impacts from future projects)
Mojave Creosote Scrub	805,832 acres	157 acres (0.02%)	43,320 acres (5.4%)	**0 acres**	**0 acres**	**0 acres**
Sonoran Creosote Scrub	3,829,999acres	11,871 acres (0.3%)	226,954 acres (5.9%)	**4,401acres (1.9%)**	**4,319 acres (1.9%)**	**3,176 acres (1.4%)**
Desert Dry Wash Woodland	682,027 acres	2,971 acres (0.4%)	47,585 acres (7.0%)	**101 acres (0.21%)**	**93 acres (0.20%)**	**102 acres (0.21%)**
Playa/Dry Lake	88,110 acres	11 acres (0.01%)	18,634 acres (21.1%)	**0 acres**	**0 acres**	**0 acres**
Sand Dunes	62,140 acres	14 acres (0.02%)	56 acres (0.09%)	**0 acres**	**0 acres**	**0 acres**
Chenopod Scrub	2,113 acres	10 acres (0.1%)	0 acres	**0 acres**	**0 acres**	**0 acres**
Agriculture, Developed	94,187 acres	4,856 acres (5.2%)	1,017 acres (1.1%)	**3 acres (0.29%)**	**2 acres (0.20%)**	**21 acres (2.1%)**
Pinyon-Juniper Woodland	1,928 acres	0 acres	0 acres	**0 acres**	**0 acres**	**0 acres**

Source: Blythe Solar Power Project Final EIS (BLM 2010a).
Notes:
[a]Based on the BLM NECO Plant Communities dataset (BLM CDD 2002) 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 CDD 2002]).
[b]Includes only those existing projects between Desert Center and the Colorado River for which GIS-based spatial data was available at the time of the analysis.
[c]Includes only BLM Renewables that had submitted a Plan of Development (POD) at the time of the analysis and those additional future projects.

Impact BIO-2 – Direct and Indirect Impacts to Special Status Plant Species

The Proposed Project is not anticipated to significantly impact any populations of special status species or cacti, although a number of individuals would be impacted by each Alternative (as described above and summarized in Table 4.3-3). However, as discussed under Impact BIO-1 above, 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, which would remove habitat for many special status plant species and cacti. Therefore, the loss of this habitat is anticipated to result in significant cumulative impacts on populations of many special status plant species and cacti and as described in Impact BIO-1 above, the Proposed Project's contribution to these cumulative impacts would be considerable. However, implementation of the Habitat Compensation Plan included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of creosote bush scrub and desert dry wash woodland is adequately compensated for and equivalent habitat would be protected offsite. In addition, Applicant Measures BIO-3 and BIO-5 would ensure that special status species and cacti are transplanted if feasible. Therefore, with implementation of these measures, the Project's contribution to cumulative impacts on these species would be reduced to less than significant levels.

Impact BIO-3 – Direct and Indirect Impacts to Sensitive Natural Communities

The Proposed Project affects desert dry wash woodland habitat within the Big Wash system which is part of the overall Palen Watershed (see Figure 7 of the BRTR contained in Appendix H). The development of numerous large-scale projects, such other wind and solar generation facilities, within the Palen Watershed would result in a substantial permanent conversion of desert habitat to industrial/commercial uses. Table 4.3-19 presents the total acreage of desert dry wash woodland within the Palen Watershed, as well as the acreages of disturbance associated with the existing and foreseeable future projects within the watershed calculated by Aspen Environmental for the Palen Solar Power Project EIS (BLM and CEC 2010). Aspen Environmental used the 2010 USGS National Hydrographic Dataset within the watershed boundary as defined by the California Interagency Watershed Map of 1999 to calculate these acreages.

Table 4.3-19
Summary of Cumulative Impacts on Desert Dry Wash Woodland within the Palen Watershed

Vegetation Community[a]	Total Vegetation Communities in the Palen Watershed[a]	Impacts to Vegetation Community from Existing Projects (percent of vegetation community in Palen Watershed)[b]	Impacts to Vegetation Community from Foreseeable Future Projects (percent of vegetation community in Palen Watershed)[c]	Contribution of Alternative 1 to Future Cumulative Impacts (percent of total impacts from future projects)	Contribution of Alternative 2 to Future Cumulative Impacts (percent of total impacts from future projects)	Contribution of Alternative 3 to Future Cumulative Impacts (percent of total impacts from future projects)
Desert Dry Wash Woodland	148,856 acres	4,566 acres (3.1%)	10,950 acres (7.4%)	**101 acres (0.9%)**	**93 acres (0.8%)**	**102 acres (0.9%)**

Source: Palen Solar Power Project Draft EIS (BLM and CEC 2010)
Notes:
[a]Based on the BLM NECO Plant Communities dataset (BLM CDD 2002) 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 CDD 2002]).
[b]Includes only those existing projects between Desert Center and the Colorado River for which GIS-based spatial data was available at the time of the analysis. Acreage presented here are likely an overestimate of the actual existing acreage given that this value is larger than the total acreage of desert dry wash woodland reported to be disturbed in the entire NECO planning area in the Blythe Solar Power Project EIS (Table 4.3-18) which was published in August 2010 (while the Palen Solar Power Project Draft EIS was published in March 2010).
[c]Includes only BLM Renewables that had submitted a Plan of Development (POD) at the time of the analysis and those additional future projects.

The total projected loss of 10.5 percent of the desert dry wash woodland habitat in the Palen Watershed from existing and foreseeable future projects would constitute a significant cumulative impact. As shown in Table 4.3-19, implementation of Alternatives 1, 2, and 3 would contribute between 0.8 and 0.9 percent to this cumulative impact. Due to the sensitivity of this vegetation community, Alternatives 1, 2, and 3 would have a considerable contribution to cumulative impacts on this resource. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of desert dry wash woodland is adequately compensated for and equivalent habitat would be protected offsite. Therefore, with implementation of this measure, the Project's contribution to cumulative impacts would be reduced to less than significant levels.

Impact BIO-4 – Direct and Indirect Impacts to Jurisdictional Resources

The extent of jurisdictional resources within the Palen Watershed is unknown, however, desert dry wash woodland habitat is a subset of these resources and can be used as a proxy to evaluate cumulative impacts on jurisdictional resources. As discussed in Impact BIO-3 above, the Proposed Project would have a considerable contribution to significant cumulative impacts on desert dry wash woodland in the Palen Watershed.

Implementation of Alternatives 1, 2, and 3 would directly affect approximately 354 acres, 312 acres, and 304 acres of jurisdictional resources, respectively (see Table 4.3-5 for a breakdown of temporary versus permanent effects). Therefore, the Proposed Project can also be expected to have a considerable contribution to significant cumulative impacts on jurisdictional resources. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of jurisdictional resources is adequately compensated for and equivalent habitat would be protected offsite. Therefore, with implementation of this measure, the Project's contribution to cumulative impacts would be reduced to less than significant levels.

Impact BIO-5 – Local Policies or Ordinances Protecting Biological Resources

Because the Proposed Project would be consistency with the local open space policies of the County of Riverside's General Plan, there would be no project-specific impacts or a contribution to cumulative impacts.

4.4 WILDLIFE

4.4.1 Methodology for Analysis

A summary of the overall acreages of disturbance associated with each Alternative is provided in Table 4.4-1. Acreages calculated for impacts were based on the best information available at the time of publication of the EIS for permanent disturbance areas. For the Gen-Tie Line and Red Bluff Substation A, temporary disturbance would be caused by installation of temporary access roads and staging areas. Vegetation in these areas would be crushed by construction equipment but not bladed, as described in Chapter 2, Project Description. Permanent disturbance would be caused by transmission pole and tower footprints, permanent access roads, and the other elements of the substation. Disturbances associated within the entire Solar Farm footprint were assumed to be permanent.

Table 4.4-1
Comparison of Action Alternative Features Relevant to Wildlife Impacts

Project Feature	Alternative 1	Alternative 2	Alternative 3
Solar Farm Acreage	4,245	4,245	3,045
Gen-Tie Line Temporary Disturbance Acreage	86	67	75
Gen-Tie Line Permanent Disturbance Acreage	18	11	23
Subtotal Gen-Tie Line Disturbance Acreage	104	78	98
Red Bluff Substation (and related elements) Temporary Disturbance Acreage	28	0	28
Red Bluff Substation (and related elements) Permanent Disturbance Acreage	128	91	128
Subtotal Red Bluff Substation (and related elements) Disturbance Acreage	156	91	156
Subtotal Temporary Disturbance Acreage	114	67	103
Subtotal Permanent Disturbance Acreage	4,391	4,347	3,196
Total Disturbance Acreage	4,505	4,414	3,299

Impacts are considered permanent if areas are precluded from restoration to a pre-project state in a relatively short period of time. Natural recovery rates from disturbance in desert ecosystems depend on the nature and severity of the impact. For example, creosote bushes can resprout a full canopy within five years after damage from heavy vehicle traffic (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). For the purposes of this analysis, an impact is considered temporary only if there is evidence to indicate that pre-disturbance levels of biomass, cover, density, community structure, and soil characteristics could be achieved within five years of restoration.

Table 4.4-2 summarizes the special status species that have either been observed to occur within each Alternative's footprint, or are expected to occur based upon their habitat requirements and occurrences nearby. All creosote bush scrub and desert dry wash woodland present within the Project locations provide habitat for each of the species listed in Table 4.4-2. More details are provided in Section 3.4.

Table 4.4-3 summarizes the acreages of the Chuckwalla DWMA and the Chuckwalla CHU that would be affected by each Alternative.

Table 4.4-2
Overall Summary of Impacts on Special Status Wildlife Species

Species	Alternative 1	Alternative 2	Alternative 3
Reptiles			
Desert tortoise	C (25/7)	C (28/16)	C (9/2)
Rosy boa	P	P	P
Chuckwalla	C	P	C
Birds			
Burrowing owl	C (1)	C	C
Northern harrier	C	C	C
Loggerhead shrike	C (28)	C (31)	C (24)
LeConte's thrasher	C (2)	C (2)	C (2)
Short-eared or long-eared owl	P	P	P
Golden eagle	P	P	P
Mammals			
Palm Springs round-tailed ground squirrel	C	C	P
Pallid bat	P	P	P
Western mastiff bat	P	P	P
Pocketed free-tailed bat	P	P	P
Townsend's big-eared bat	P	P	P
California leaf-nosed bat	P	P	P
Colorado Valley woodrat	P	P	P
Nelson's bighorn sheep	P	P	P
Burro deer	C	P	C
American badger	P	P	P

Note: Numbers of individuals observed shown in parentheses, except for the desert tortoise where the number of active burrows is shown first followed by the number of live tortoises observed.
Potential for occurrence:
U: Unlikely
P: Potential
C: Confirmed

Table 4.4-3
Overall Summary of Impacts on Wildlife Management Areas

Species	Alternative 1	Alternative 2	Alternative 3
Chuckwalla DWMA			
Temporary disturbance acreage	65	48.4	39.9
Permanent disturbance acreage	131.6	7.5	129.4
Subtotal (acres)	196.6	55.9	169.3
Chuckwalla CHU			
Temporary disturbance acreage	56	23.9	41.6
Permanent disturbance acreage	137.8	96.5	131.6
Subtotal (acres)	193.8	120.4	173.2
Total (acres)	**390.4**	**176.3**	**342.5**

Direct and indirect impacts of each action Alternative on wildlife are discussed in Sections 4.4.3, 4.4.4, and 4.4.5. Direct impacts on wildlife are considered to include injury or death to an individual, habitat loss or degradation, adverse effects on movement, increased predation, and disturbance from noise, light, or dust.

Indirect impacts can occur later in time or are farther removed in distance while still being reasonably foreseeable and related to the project. Potential indirect impacts include introduction of invasive species by various vectors or conditions that compete with native species and can result in habitat degradation.

A *Desert Tortoise Relocation Plan* (Ironwood Consulting 2010d), *Raven Management Plan* (Ironwood Consulting 2010e), and *Avian and Bat Protection Plan* (Ironwood Consulting 2010f) have been prepared to reduce direct and indirect impacts on wildlife. Draft plans are contained in Appendix H of this document.

4.4.2 CEQA Significance Criteria

The proposed Project would have a significant impact on wildlife if it would:

WIL-1. Have a substantial adverse effect on wildlife habitat, including direct and indirect effects;

WIL-2. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate for state or federal listing as threatened or endangered, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game (CDFG) or US Fish and Wildlife Service (USFWS);

WIL-3 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-4 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

WIL-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.

4.4.3 Alternative 1 – Proposed Action

Construction

Solar Farm Layout B

Wildlife Habitat

Removal of 4,245 acres of habitat and installation of exclusion fencing around the site would have a direct affect on wildlife species through habitat loss (see below for separate discussions of impacts on special status wildlife species and wildlife movement and breeding). Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these impacts.

Construction of SF-B would increase noise, night lighting, and dust which could disturb wildlife species adjacent to the construction zones. Most wildlife species are very sensitive to visual and noise disturbances which could cause wildlife to alter foraging and/or breeding behavior and avoid suitable habitat in adjacent areas. Night lighting could attract wildlife to the site, thus disrupting their normal pattern of behavior. During construction, restricted nighttime task lighting would be used, only as necessary. The light would be shielded and focused downward to minimize glare in surrounding areas. Because no mirrors are proposed on the solar array, there would be no impacts associated with glare or polarized light. In addition, implementation of dust control mitigation measures discussed in Section 4.2, Air Resources, would reduce impacts associated with dust.

Storm water retention ponds would be constructed, however, given the rate of evaporation in the desert ecosystem, they are not expected to hold water for a long enough period of time to attract wildlife species. Because the Proposed Project does not utilize water to generate power, no evaporation ponds are proposed.

As discussed in Section 4.3, Vegetation, construction of SF-B would also have the potential to introduce invasive plant species into areas adjacent to SF-B which could result in the degradation of additional wildlife habitat. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these indirect impacts.

Special Status Wildlife Species

A summary of the special status species observed or expected to occur within SF-B is provided in Table 4.4-4.

Table 4.4-4
Summary of Construction Impacts on Special Status Wildlife Species under Alternative 1

Species	Solar Farm B	Gen-Tie Line A-1	Red Bluff Substation A
Reptiles			
Desert tortoise	C (22/6)	C (2/1)	C (1/0)
Rosy boa	U	U	P
Chuckwalla	U	U	C
Birds			
Burrowing owl	C	C (1)	P
Northern harrier	C	P	P
Loggerhead shrike	C (17)	C (6)	C (5)
LeConte's thrasher	C (2)	P	P
Short-eared or long-eared owl	P	P	P
Golden eagle	P	P	P
Mammals			
Palm Springs round-tailed ground squirrel	P	C	P
Pallid bat	P	P	P
Western mastiff bat	P	P	P
Pocketed free-tailed bat	P	P	P
Townsend's big-eared bat	P	P	P
California leaf-nosed bat	P	P	P
Mountain lion	P	P	P
Colorado Valley woodrat	P	P	P
Nelson's bighorn sheep	P	P	P
Burro deer	P	P	C
American badger	P	P	P

Note: Numbers of individuals observed shown in parentheses, except for the desert tortoise where the number of active burrows is shown first followed by the number of live tortoises observed,
Potential for occurrence:
U: Unlikely
P: Potential
C: Confirmed

Desert Tortoise

Active desert tortoise sign was found within the SF-B footprint, and is concentrated in the northwest corner (see the BRTR in Appendix H for more details). Therefore, there is potential to cause harm to a desert tortoise during the construction of SF-B. During construction, desert tortoises could be harmed during clearing, grading, and trenching activities or could become entrapped within open trenches and pipes. Construction activities could also result in direct mortality, injury, or harassment of individuals as a result of encounters with vehicles or heavy equipment. Other direct effects could include individual tortoises being crushed or entombed in their burrows, collection or vandalism, 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 also could be attracted to the construction area by application of water to control dust, placing them at higher risk of injury or mortality. Increased human activity and vehicle travel would occur from the construction and improvement of access roads, which could disturb, injure, or kill individual tortoises. Also, tortoises could seek shade and thermal cover by taking shelter under parked vehicles and be killed, injured, or harassed when the vehicle is moved.

Capturing, handling, and relocating desert tortoises from the proposed site after the installation of exclusion fencing could result in harassment and possibly death or injury. Impacts of translocation on desert tortoises may include elevated stress hormone levels, changes in behavior and social structure dynamics, genetic mixing, increased movement (caused by antagonistic behavior with other tortoises, avoidance of predators or anthropogenic influence, homing, or seeking out of preferred habitat), spread of disease, and increased predation. Desert tortoises could die or become injured by capture and relocation if these methods are performed improperly, particularly during extreme temperatures, or if they void their bladders. Mortality of translocated desert tortoises has been estimated at approximately 15%, though recent evidence from the desert tortoise translocation effort conducted in support of the Fort Irwin Land Expansion Project indicates that mortality rates may be closer to 25% per year. Implementation of the *Desert Tortoise Translocation Plan* required in Applicant Measure WIL-1 and a *Worker Environmental Awareness Program* required in Applicant Measure BIO-4 discussed in Section 4.3, Vegetation, would reduce these impacts.

During construction of SF-B, the desert tortoise exclusion fencing that would be installed around construction areas and removal of 4,245 acres of potential habitat for the species (creosote desert scrub and desert dry wash woodland) would have direct effects on the local desert tortoise population. Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these impacts.

Trash and debris generated by construction activities could attract predators of desert tortoise, common ravens, to the construction site. Implementation of the *Raven Management Plan* required in Applicant Measure WIL-2 would reduce these impacts.

Finally, construction of SF-B would increase dust in desert tortoise habitat adjacent to the Solar Farm site which could have an adverse effect on the health of the species. Implementation of dust control mitigation measures discussed in Section 4.2, Air Resources, would reduce these impacts.

As discussed in Section 4.3, Vegetation, construction of SF-B would also have the potential to introduce invasive plant species into areas adjacent to SF-B which could result in the degradation of additional habitat for the desert tortoise. Implementation of an *Integrated Weed Management Plan* required in Applicant Measure BIO-2 and discussed in Section 4.3, Vegetation, would reduce these indirect impacts.

Other Reptiles

No other special status reptile species are expected to occur in SF-B.

Birds

As discussed in Section 3.4, the northern harrier and golden eagle have the potential to forage in the SF-B area, but are not expected to nest there. Sign for the burrowing owl has been observed in SF-

B. No individuals were found, however, the site does provide nesting habitat for the species. The loggerhead shrike and LeConte's thrasher have also been observed in SF-B and the site provides nesting habitat for these species as well. Either the short-eared owl or long-eared owl has been observed adjacent to SF-B; therefore, SF-B provides suitable habitat for this species as well. Finally, a number of other bird species have the potential to nest in SF-B and their nests, eggs, and young are protected by the Migratory Bird Treaty Act and California Fish and Game Code.

Removal of 4,245 acres of habitat and installation of exclusion fencing around the site would have a direct effect on bird species through the loss of foraging and breeding habitat. As discussed in Section 3.4, an active territory of a pair of golden eagles is located approximately two miles from the boundary of the Solar Farm site. Because the home range of golden eagles can reach approximately 6.2 miles from their nests, it was conservatively estimated that the entire Project site is located within the active territory of this pair. Out of the total 76,800 acres of foraging habitat in the active territory of this pair, removal of 4,245 acres associated with the Solar Farm site would comprise 5.5% of the foraging habitat for this pair. Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these impacts.

Special status bird species that are nesting and other nesting bird species protected by the Migratory Bird Treaty Act and California Fish and Game Code could be directly impacted by construction activities, including their nests, eggs, and young. Nests could be destroyed or abandoned. Due to their fossorial nature, burrowing owls are particularly sensitive to disturbance by construction activities. Construction equipment could crush their burrows and could harm, kill, or harass burrowing owls not able to escape in time. Implementation of the *Avian and Bat Protection Plan* required in Applicant Measure WIL-3 and a *Worker Environmental Awareness Program* required in Applicant Measure BIO-4 discussed in Section 4.3, Vegetation, would reduce these impacts.

Construction of SF-B would increase noise, night lighting, and dust which could disturb bird species adjacent to the construction zones. Most wildlife species are very sensitive to visual and noise disturbances which could cause wildlife to alter foraging and/or breeding behavior and avoid suitable habitat in adjacent areas. Night lighting could attract wildlife to the site, thus disrupting their normal pattern of behavior. During construction, restricted nighttime task lighting would be used, only as necessary. The light would be shielded and focused downward to minimize glare in surrounding areas. In addition, implementation of dust control mitigation measures discussed in Section 4.2, Air Resources, would reduce impacts associated with dust.

As discussed in Section 4.3, Vegetation, construction of SF-B would also have the potential to introduce invasive plant species into areas adjacent to SF-B which could result in the degradation of additional habitat. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these indirect impacts.

<u>Mammals</u>

As summarized in Table 4.4-4, no special status mammal species have been observed at the Solar Farm site, however, five bat species, the Palm Springs round-tailed ground squirrel (a federal candidate for listing), mountain lion, Colorado Valley woodrat, Nelson's bighorn sheep, burro deer, and American badger, could potentially occur based on presence of suitable habitat and nearby occurrences.

Removal of 4,245 acres of habitat and installation of exclusion fencing around the site would have a direct effect on these mammal species through habitat loss. Removal of this habitat would constitute a loss of foraging habitat for all of these species and a loss of breeding habitat for the bat species (as well as roosting habitat), Palm Springs round-tailed ground squirrel, Colorado Valley woodrat, and American badger. Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these impacts.

Fossorial mammals (i.e., Palm Springs round-tailed ground squirrel, Colorado Valley woodrat, and American badger) and roosting bats are especially susceptible to disturbance from construction activities. Entire bat roosts could be destroyed by construction equipment and individuals could be harmed, killed, or harassed. Similarly, dens of the fossorial mammals could be destroyed by construction equipment and individuals could be harmed, killed, or harassed. Implementation of the *Avian and Bat Protection Plan* as required in Applicant Measure WIL-3 and construction monitoring during ground disturbing activities as required in Mitigation Measure BIO-1 and a *Worker Environmental Awareness Program* required in Applicant Measure BIO-4, discussed in Section 4.3, Vegetation, would reduce these impacts.

Construction of SF-B would increase noise, night lighting, and dust which could disturb mammal species adjacent to the construction zones. Most wildlife species are very sensitive to visual and noise disturbances which could cause wildlife to alter foraging and/or breeding behavior and avoid suitable habitat in adjacent areas. Night lighting could attract wildlife to the site, thus disrupting their normal pattern of behavior. During construction, restricted nighttime task lighting would be used, only as necessary. The light would be shielded and focused downward to minimize glare in surrounding areas. In addition, implementation of dust control mitigation measures discussed in Section 4.2, Air Resources, would reduce impacts associated with dust.

As discussed in Section 4.3, Vegetation, construction of SF-B would also have the potential to introduce invasive plant species into areas adjacent to SF-B which could result in the degradation of additional habitat. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these indirect impacts.

Wildlife Movement or Nursery Sites

As discussed under *Special Status Wildlife Species* above, construction of SF-B would have similar direct and indirect impacts on breeding (nursery) sites of other non-special status amphibian, reptile, bird, and mammal species in the area. Nesting birds are particularly sensitive to visual and noise disturbances, which could lead to nest abandonment and reduced reproductive success. It could also lead to increased stress and habitat avoidance which could also lead to decreased foraging success. Implementation of construction monitoring required in Mitigation Measure BIO-1, an *Integrated Weed Management Plan* (Applicant Measure BIO-2), a *Habitat Compensation Plan* (Applicant Measure BIO-1), and a *Worker Environmental Awareness Program* required in Applicant Measure BIO-4, discussed in Section 4.3, Vegetation; dust control mitigation measures discussed in Section 4.2, Air Resources; as well as an *Avian and Bat Protection Plan* (Applicant Measure WIL-3) , would reduce impacts on wildlife breeding sites.

Desert dry wash woodland habitat within and adjacent to SF-B (e.g., Pinto Wash) likely serve as important wildlife movement corridors in the area. As discussed in Section 3.4, due to its size, Pinto

Wash, located immediately to the east of SF-B may be especially important in the region, especially for larger mammals such as mountain lion, Nelson's bighorn sheep, and burro deer.

Pinto Wash would not be affected directly by the proposed Project, however, desert dry wash woodland within SF-B would be directly impacted by construction. Exclusion fencing surrounding the entire 4,245-acre site would also directly impact the movement of wildlife in the region in general.

The Chuckwalla DWMA and CHU are also areas that are likely important movement corridors for the desert tortoise. A discussion of impacts on these areas is provided below.

Local Policies or Ordinances Protecting Biological Resources

The Desert Center Area Plan of the County of Riverside's General Plan contains the following local open space policies:

DCAP 10.1 *Encourage clustering of development for the preservation of contiguous open space.*

DCAP 10.2 *Work to limit off-road vehicle use within the Desert Center Area Plan.*

DCAP 10.3 *Require new development to conform with Desert Tortoise Critical Habitat designation requirements.*

Because SF-B was sited to avoid pristine or biologically sensitive areas and would not create any new roads that would be accessible to off-road vehicles, SF-B is consistent with policies DCAP 10.1 and DCAP 10.2.

SF-B is located outside of designated critical habitat for the desert tortoise, therefore, SF-B is consistent with policy DCAP 10.3.

Wildlife Management Areas

SF-B is not within either the Chuckwalla DWMA or Chuckwalla CHU. The western edge of SF-B is adjacent to the Chuckwalla DWMA, and construction activities have the potential to directly and indirectly impact species utilizing this protected area as a result of noise, night lighting, dust, and the potential to introduce invasive plant species. During construction, restricted nighttime task lighting would be used, only as necessary. The light would be shielded and focused downward to minimize glare in surrounding areas. In addition, implementation of the following measures would reduce impacts: dust control mitigation measures discussed in Section 4.2, Air Resources; and the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation.

Gen-Tie Line A-1

Wildlife Habitat

Permanent removal of 12 acres of creosote desert scrub and 5 acres of desert dry wash woodland habitat would have a direct affect on wildlife species through habitat loss. Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these impacts.

Construction of GT-A-1 would increase noise, night lighting, and dust which could disturb wildlife species adjacent to the construction zones. During construction, restricted nighttime task lighting would be used, only as necessary. The light would be shielded and focused downward to minimize glare in surrounding areas. In addition, implementation of dust control mitigation measures discussed in Section 4.2, Air Resources, would reduce impacts associated with dust.

As discussed in Section 4.3, Vegetation, construction of GT-A-1 would also have the potential to introduce invasive plant species into adjacent areas which could result in the degradation of additional wildlife habitat. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these indirect impacts.

Special Status Wildlife Species

A summary of the special status species observed or expected to occur within GT-A-1 is provided in Table 4.4-4. Under SF-B, the Palm Springs round-tailed ground squirrel had the potential to occur, whereas, the species has actually been observed in the footprint of the GT-A-1. Similarly, one individual burrowing owl was observed in the footprint of GT-A-1.

Potential direct and indirect impacts on special status wildlife species would be similar to those discussed under SF-B. Exclusion fencing would not be installed around the GT-A-1 site, however, construction monitors would translocate all desert tortoises observed in the construction zone. Rather than translocating desert tortoises to a recipient site, tortoises would be moved out of harms way pursuant to USFWS guidance (Fraser 2010). Therefore, movement of the species through the construction zone would still be affected during construction. Implementation of construction monitoring required in Mitigation Measure BIO-1, an *Integrated Weed Management Plan* (Applicant Measure BIO-2), a Worker Environmental Awareness Program (Applicant Measure BIO-4), and a *Habitat Compensation Plan* (Applicant Measure BIO-1) as discussed in Section 4.3, Vegetation; dust control mitigation measures discussed in Section 4.2, Air Resources; as well as Applicant Measures WIL-1 through 3 below, would reduce impacts.

Wildlife Movement or Nursery Sites

Potential direct and indirect impacts on wildlife movement or nursery sites would be similar to those discussed under SF-B. Exclusion fencing would not be installed around the GT-A-1 site, therefore, although disturbance due to construction activities would still occur, movement through the construction zone would not be physically disrupted. Implementation of construction monitoring required in Mitigation Measure BIO-1, an *Integrated Weed Management Plan* (Applicant Measure BIO-2) and a *Habitat Compensation Plan* (Applicant Measure BIO-1) as discussed in Section 4.3, Vegetation; dust control mitigation measures discussed in Section 4.2, Air Resources; as well as an *Avian and Bat Protection Plan* (Applicant Measure WIL-3), would reduce these impacts.

Local Policies or Ordinances Protecting Biological Resources

As discussed under SF-B, the Proposed Project would be consistent with the local open space policies in the County of Riverside's General Plan.

GT-A-1 is within designated critical habitat for the desert tortoise. Formal Section 7 consultation will be conducted with the USFWS regarding potential Project impacts on designated critical habitat for the desert tortoise. Therefore, GT-A-1 is consistent with policy DCAP 10.3.

Wildlife Management Areas

Table 4.4-5 shows the acres within the Chuckwalla DWMA and Chuckwalla CHU that would be temporarily and permanently disturbed as a result of construction of GT-A-1 (see Figure 3.4-5 also). GT-A-1 goes through the Chuckwalla DWMA and a portion of the Chuckwalla CHU. Construction activities would temporarily impact 38.5 acres of the Chuckwalla DWMA and 28 acres of the Chuckwalla CHU. Further, GT-A-1 would permanently impact 3.6 acres and 9.8 acres within the Chuckwalla DWMA and CHU, respectively. The NECO plan allows for development in one percent of the BLM-administered lands within the DWMA, which is approximately 465,287 acres. Therefore, the permanent development of 3.6 acres within the DWMA under GT-A-1 would represent a negligible percentage (0.0008%) of the allowable development within the DWMA. Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce this impact.

Construction activities have the potential to directly and indirectly impact areas within the Chuckwalla DWMA and Chuckwalla CHU located outside of the construction footprint as a result of noise, night lighting, dust, and the potential to introduce invasive plant species. During construction, restricted nighttime task lighting would be used, only as necessary. The light would be shielded and focused downward to minimize glare in surrounding areas. In addition, implementation of the following measures would reduce impacts: dust control mitigation measures discussed in Section 4.2, Air Resources; and the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation.

Table 4.4-5
Summary of Construction Impacts on Wildlife Management Areas under Alternative 1

Species	Solar Farm B	Gen-Tie Line A-1	Red Bluff Substation A
Chuckwalla DWMA			
Temporary disturbance acreage	0	38.5	28
Permanent disturbance acreage	0	3.6	128
Subtotal (acres)	0	42.1	156
Chuckwalla CHU			
Temporary disturbance acreage	0	28	28
Permanent disturbance acreage	0	9.8	128
Subtotal (acres)	0	37.8	156
Total (acres)	**0**	**79.9**	**312**

Red Bluff Substation A

Wildlife Habitat

Removal of 156 acres of habitat and installation of exclusion fencing around the site would have a direct affect on wildlife species through habitat loss. Implementation of a *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these impacts.

Construction of Red Bluff Substation A would increase noise, night lighting, and dust which could disturb wildlife species adjacent to the construction zones. During construction, restricted nighttime task lighting would be used, only as necessary. The light would be shielded and focused downward to minimize glare in surrounding areas. In addition, implementation of dust control mitigation measures discussed in Section 4.2, Air Resources, would reduce impacts associated with dust.

As discussed in Section 4.3, Vegetation, construction of Red Bluff Substation A would also have the potential to introduce invasive plant species into adjacent areas which could result in the degradation of additional wildlife habitat. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these indirect impacts.

Special Status Wildlife Species

A summary of the special status species observed or expected to occur within the Red Bluff Substation A footprint is provided in Table 4.4-4. In Red Bluff Substation A, the chuckwalla and the rosy boa have either been observed or have the potential to occur in rocky areas. The burrowing owl was not observed in this area, but has the potential to occur.

Potential direct and indirect impacts on special status wildlife species would be similar to those discussed under SF-B. Impacts on the chuckwalla and rosy boa would be similar to impacts on the desert tortoise.

Implementation of an *Integrated Weed Management Plan* (Applicant Measure BIO-2), a Worker Environmental Awareness Program (Applicant Measure BIO-4), a *Habitat Compensation Plan* (Applicant Measure BIO-1), and construction monitoring required in Mitigation Measure BIO-1 as discussed in Section 4.3, Vegetation; dust control mitigation measures discussed in Section 4.2, Air Resources; as well as Applicant Measures WIL-1 through 3 below, would reduce impacts.

Wildlife Movement or Nursery Sites

Potential direct and indirect impacts on wildlife movement or nursery sites would be similar to those discussed under SF-B. However, due to its smaller size, construction of Red Bluff Substation A would not be expected to have as much of an impact on wildlife movement as SF-B.

Implementation of an *Integrated Weed Management Plan* (Applicant Measure BIO-2), a Worker Environmental Awareness Program (Applicant Measure BIO-4), a *Habitat Compensation Plan* (Applicant Measure BIO-1), and construction monitoring required in Mitigation Measure BIO-1as discussed in Section 4.3, Vegetation; dust control mitigation measures discussed in Section 4.2, Air Resources; as well as an *Avian and Bat Protection Plan* (Applicant Measure WIL-3) below, would reduce these impacts .

Local Policies or Ordinances Protecting Biological Resources

As discussed under GT-A-1, the Proposed Project would be consistent with the local open space policies in the County of Riverside's General Plan.

Wildlife Management Areas

Table 4.4-5 shows the acres within the Chuckwalla DWMA and Chuckwalla CHU that would be disturbed as a result of construction of Red Bluff Substation A (see Figure 3.4-5 also). Construction activities would temporarily impact 28 acres and permanently impact 128 acres within the Chuckwalla DWMA and CHU. The NECO plan allows for development in one percent of the BLM-administered land within the DWMA, which is approximately 465,287 acres. Therefore, the permanent development of 128 acres within the DWMA under the Red Bluff Substation A would represent a small percentage (0.03%) of the allowable development within the DWMA. Implementation of a *Habitat Compensation Plan* required in Applicant Measure BIO-1 as discussed in Section 4.3, Vegetation, would reduce this impact.

Similar indirect impacts on the Chuckwalla DWMA and Chuckwalla CHU would result from construction of Red Bluff Substation A as under SF-B.

Summary of Construction Impacts

Wildlife Habitat

Table 4.3-6 (in Section 4.3, Vegetation) summarizes the acreage of wildlife habitat (creosote desert scrub and desert dry wash woodland) that would be lost from construction of Alternative 1. In addition, the potential to introduce invasive species and dust, noise, and lighting associated with construction activities could adversely affect wildlife habitat in adjacent areas.

Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these impacts. During construction, restricted nighttime task lighting would be used, only as necessary. The light would be shielded and focused downward to minimize glare in surrounding areas. In addition, implementation of dust control mitigation measures discussed in Section 4.2, Air Resources, would reduce impacts associated with dust. Finally, implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these indirect impacts.

Special Status Wildlife Species

A summary of the special status species observed or expected to occur within the Alternative 1 site is provided in Table 4.4-4.

Desert Tortoise

Active desert tortoise sign was found within each of the components of Alternative 1. Therefore, there is potential to cause harm to a desert tortoise during the construction of Alternative 1. Individual tortoises could be harmed by vehicles and construction equipment directly or by the crushing of occupied burrows. Individual tortoises could fall into open trenches or pits with the potential to cause mortality. Implementation of the *Desert Tortoise Translocation Plan* required in

Applicant Measure WIL-1 and a *Worker Environmental Awareness Program* required in Applicant Measure BIO-4 discussed in Section 4.3, Vegetation, would reduce these impacts.

During construction of Alternative 1, the desert tortoise exclusion fencing that would be installed around SF-B and Red Bluff Substation A and removal of potential habitat for the species (creosote desert scrub and desert dry wash woodland) in all areas would have direct effects on the local desert tortoise population. Exclusion fencing would not be installed around the GT-A-1 site, however, construction monitors would translocate all desert tortoises observed in the construction zone. Therefore, movement of the species through the construction zone would still be affected during construction. Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these impacts.

Trash and debris generated by construction activities could attract predators of desert tortoise, common ravens, to the construction site. Implementation of the *Raven Management Plan* required in Applicant Measure WIL-2 would reduce these impacts.

Construction would increase dust in adjacent desert tortoise habitat which could have an adverse effect on the health of the species. Implementation of dust control mitigation measures discussed in Section 4.2, Air Resources, would reduce these impacts.

As discussed in Section 4.3, Vegetation, construction of Alternative 1 would also have the potential to introduce invasive plant species into adjacent areas which could result in the degradation of additional habitat for the desert tortoise. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these impacts.

<u>Other Reptiles</u>

The chuckwalla and rosy boa have either been observed or have the potential to occur in rocky areas at Red Bluff Substation A. Construction would have similar potential direct and indirect impacts on these species as on the desert tortoise.

<u>Birds</u>

As discussed in Section 3.4, the northern harrier and golden eagle have the potential to forage in the Alternative 1 area, but are not expected to nest there. The burrowing owl has been observed in the Alternative 1 site and was not observed to be nesting. However, the site does provide nesting habitat for the species. The loggerhead shrike and LeConte's thrasher have also been observed in Alternative 1 and the site provides nesting habitat for these species as well. Either the short-eared owl or long-eared owl has been observed adjacent to SF-B; therefore, Alternative 1 provides suitable habitat for this species as well. Finally, a number of other bird species have the potential to nest in SF-B and their nests, eggs, and young are protected by the Migratory Bird Treaty Act and California Fish and Game Code.

Removal of habitat would have a direct affect on bird species through the loss of foraging and breeding habitat. As discussed in Section 3.4, an active territory of a pair of golden eagles is located approximately two miles from the boundary of the Solar Farm site. Because the home range of golden eagles can reach approximately 6.2 miles from their nests, it was conservatively estimated that the entire Project site is located within the active territory of this pair. Out of the total 76,800 acres of foraging habitat in the active territory of this pair, removal of 4,505 acres associated with Alternative 1 would comprise 5.9% of the foraging habitat for this pair. Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these impacts.

Special status bird species that are nesting and other nesting bird species protected by the Migratory Bird Treaty Act and California Fish and Game Code could be directly impacted by construction activities, including their nests, eggs, and young. Nests could be destroyed or abandoned. Due to their fossorial nature, burrowing owls are particularly sensitive to disturbance by construction activities. Construction equipment could crush their burrows and could harm, kill, or harass burrowing owls not able to escape in time. Implementation of the *Avian and Bat Protection Plan* required in Applicant Measure WIL-3 and a *Worker Environmental Awareness Program* required in Applicant Measure BIO-4 discussed in Section 4.3, Vegetation, would reduce these impacts.

Construction of Alternative 1 would increase noise, night lighting, and dust which could disturb bird species adjacent to the construction zones. Most wildlife species are very sensitive to visual and noise disturbances which could cause wildlife to alter foraging and/or breeding behavior and avoid suitable habitat in adjacent areas. Night lighting could attract wildlife to the site, thus disrupting their normal pattern of behavior. During construction, restricted nighttime task lighting would be used, only as necessary. The light would be shielded and focused downward to minimize glare in surrounding areas. In addition, implementation of dust control mitigation measures discussed in Section 4.2, Air Resources, would reduce impacts associated with dust.

As discussed in Section 4.3, Vegetation, construction of Alternative 1 would also have the potential to introduce invasive plant species into areas adjacent to the Project which could result in the degradation of additional habitat. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these indirect impacts.

<u>Mammals</u>

As summarized in Table 4.4-4, five bat species, the Palm Springs round-tailed ground squirrel (a federal candidate for listing), mountain lion, Colorado Valley woodrat, Nelson's bighorn sheep, burro deer, and American badger, could potentially occur based on presence of suitable habitat and nearby occurrences.

Removal of 4,505 acres of habitat and installation of exclusion fencing around the site would have a direct affect on these mammal species through habitat loss. Removal of this habitat would constitute a loss of foraging habitat for all of these species and a loss of breeding (and roosting) habitat for the bat species, Palm Springs round-tailed ground squirrel, Colorado Valley woodrat, and American badger. Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these impacts.

Fossorial mammals and roosting bats are especially susceptible to disturbance from construction activities. Entire bat roosts could be destroyed by construction equipment and individuals could be harmed, killed, or harassed. Similarly, dens of the fossorial mammals could be destroyed by construction equipment and individuals could be harmed, killed, or harasses. Implementation of the *Avian and Bat Protection Plan* as required in Applicant Measure WIL-3 and construction monitoring during ground disturbing activities as required in Mitigation Measure BIO-1 and a *Worker Environmental Awareness Program* required in Applicant Measure BIO-4, discussed in Section 4.3, Vegetation, would reduce these impacts.

Construction of Alternative 1 would increase noise, night lighting, and dust which could disturb mammal species adjacent to the construction zones. Most wildlife species are very sensitive to visual and noise disturbances which could cause wildlife to alter foraging and/or breeding behavior and avoid suitable habitat in adjacent areas. Night lighting could attract wildlife to the site, thus disrupting their normal pattern of behavior. During construction, restricted nighttime task lighting would be used, only as necessary. The light would be shielded and focused downward to minimize glare in surrounding areas. In addition, implementation of dust control mitigation measures discussed in Section 4.2, Air Resources, would reduce impacts associated with dust.

As discussed in Section 4.3, Vegetation, construction of Alternative 1 would also have the potential to introduce invasive plant species into areas adjacent to the Project which could result in the degradation of additional habitat. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these indirect impacts.

Wildlife Movement or Nursery Sites

As discussed under *Special Status Wildlife Species* above, construction of Alternative 1 would have similar direct and indirect impacts on breeding (nursery) sites of other non-special status amphibian, reptile, bird, and mammal species in the area. Nesting birds are particularly sensitive to visual and noise disturbances, which could lead to nest abandonment and reduced reproductive success. It could also lead to increased stress and habitat avoidance which could also lead to decreased foraging success. Implementation of construction monitoring required in Mitigation Measure BIO-1, an *Integrated Weed Management Plan* (Applicant Measure BIO-2), a *Habitat Compensation Plan* (Applicant Measure BIO-1), and a *Worker Environmental Awareness Program* required in Applicant Measure BIO-4, discussed in Section 4.3, Vegetation; dust control mitigation measures discussed in Section 4.2, Air Resources; as well as an *Avian and Bat Protection Plan* (Applicant Measure WIL-3) , would reduce impacts on wildlife breeding sites.

Desert dry wash woodland habitat within and adjacent to Alternative 1 (e.g., Pinto Wash) likely serves as important wildlife movement corridors in the area. As discussed in Section 3.4, due to its size, Pinto Wash, located immediately to the east of SF-B may be especially important in the region, especially for larger mammals such as mountain lion, Nelson's bighorn sheep, and burro deer.

Pinto Wash would not be affected directly by the proposed Project, however, desert dry wash woodland within the Project locations would be directly impacted by construction. Exclusion fencing surrounding the Solar Farm site and Red Bluff Substation would also directly impact the movement of wildlife in the region in general. Exclusion fencing would not be installed around the GT-A-1 site, therefore, although disturbance due to construction activities would still occur, movement through the construction zone would not be physically disrupted.

The Chuckwalla DWMA and CHU are also areas that are likely important movement corridors for the desert tortoise. A discussion of impacts on these areas is provided below.

Local Policies or Ordinances Protecting Biological Resources

As discussed under SF-B and GT-A-1, the Proposed Project would be consistent with the local open space policies in the County of Riverside's General Plan.

Wildlife Management Areas

Table 4.4-5 shows the acres within the Chuckwalla DWMA and Chuckwalla CHU that would be disturbed as a result of construction of Alternative 1 (see Figure 3.4-5 also). Construction activities would temporarily disturb 66.5 acres and 56 acres within the Chuckwalla DWMA and CHU, respectively. Construction activities would permanently impact 131.6 acres and 137.8 acres within the Chuckwalla DWMA and CHU, respectively. The NECO plan allows for development in one percent of the BLM-administered land within the DWMA, which is approximately 465,287 acres. Therefore, the permanent development of 131.6 acres within the DWMA under Alternative 1 would represent a small percentage (0.03%) of the allowable development within the DWMA. Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 as discussed in Section 4.3, Vegetation, would reduce this impact.

Construction activities have the potential to directly and indirectly impact areas within the Chuckwalla DWMA and Chuckwalla CHU located outside of the construction footprint as a result of noise, night lighting, dust, and the potential to introduce invasive plant species. During construction, restricted nighttime task lighting would be used, only as necessary. The light would be shielded and focused downward to minimize glare in surrounding areas. In addition, implementation of the following measures would reduce impacts: dust control mitigation measures discussed in Section 4.2, Air Resources; and the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 and discussed in Section 4.3, Vegetation.

Operation and Maintenance

Solar Farm Layout B

Wildlife Habitat

During operation and maintenance of SF-B, the presence of exclusion fencing around the site would represent a permanent loss of habitat for wildlife species. Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 and discussed in Section 4.3, Vegetation, would reduce these impacts.

As discussed in Section 4.3, Vegetation, maintenance of access roads would have the potential to introduce invasive plant species into adjacent areas which could result in the degradation of additional habitat. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 and discussed in Section 4.3, Vegetation, would reduce these impacts.

Finally, lighting for SF-B could disturb wildlife species in adjacent areas. Lighting, however, would be limited to shielded area-specific lighting for security for the O&M facility and the on-site substation.

On the other hand, the solar panels could provide shade in areas adjacent to SF-B which could benefit wildlife species.

Special Status Wildlife Species

During operation and maintenance of SF-B, exclusion fencing and removal of vegetation in the area would represent a permanent loss of habitat for special status wildlife species and would affect wildlife movement in the area as well. Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these impacts.

Permanent occupation of the site by employees could introduce trash into the area which could attract common ravens, predators of the desert tortoise. Implementation of the *Raven Management Plan* required in Applicant Measure WIL-2 would reduce these impacts.

Lighting for SF-B could disturb special status wildlife species in adjacent areas. Lighting, however, would be limited to shielded area-specific lighting for security for the O&M facility and the on-site substation.

As discussed in Section 4.3, Vegetation, maintenance of access roads would have the potential to introduce invasive plant species into adjacent areas which could result in the degradation of additional habitat. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these indirect impacts.

Wildlife Movement or Nursery Sites

During operation and maintenance of SF-B, the presence of exclusion fencing around the site would represent a permanent loss of habitat for wildlife species and would affect wildlife movement in the area as well. Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these impacts.

Lighting for SF-B could disturb wildlife species in adjacent areas. Lighting, however, would be limited to shielded area-specific lighting for security for the O&M facility and the on-site substation.

As discussed in Section 4.3, Vegetation, maintenance of access roads would have the potential to introduce invasive plant species into adjacent areas which could result in the degradation of additional habitat. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these indirect impacts.

Local Policies or Ordinances Protecting Biological Resources

As discussed under construction of SF-B, the Proposed Project would be consistent with the local open space policies of the County of Riverside's General Plan.

Wildlife Management Areas

SF-B does not lie with the Chuckwalla DWMA or Chuckwalla CHU. As discussed in Section 4.3, Vegetation, maintenance of access roads would have the potential to introduce invasive plant species into the adjacent Chuckwalla DWMA which could result in the degradation of habitat in this area. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these impacts.

Gen-Tie Line A-1

Wildlife Habitat

During operation and maintenance of GT-A-1, the locations of new structures and permanent access roads would represent a permanent loss of habitat for wildlife species. Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these impacts.

As discussed in Section 4.3, Vegetation, maintenance of access roads would have the potential to introduce invasive plant species into adjacent areas which could result in the degradation of additional habitat. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these indirect impacts.

Special Status Wildlife Species

Because no exclusion fencing would be installed around GT-A-1 maintenance of the facilities would still have the potential to directly impact special status wildlife species as described under construction of GT-A-1. Implementation of a *Worker Environmental Awareness Program* required in Applicant Measure BIO-4 and discussed in Section 4.3, Vegetation, would reduce these impacts.

Vegetation permanently removed by GT-A-1 facilities would result in a permanent loss of habitat for special status wildlife species. Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these impacts. However, after construction, special status wildlife species would be expected to continue to migrate into and out of the GT-A-1 footprint and could utilize areas that were temporarily disturbed during construction but were subsequently revegetated.

Transmission line towers provide artificial perches and nest sites for raptors and ravens. Therefore, the new towers could attract common raven to the area, predators of desert tortoise. Implementation of the *Raven Management Plan* required in Applicant Measure WIL-3 would reduce these impacts.

All transmission and subtransmission towers and poles would be designed to be avian-safe in accordance with the Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (APLIC 2006). However, installation of the towers would introduce the potential for bird strikes with the towers.

Finally, as discussed in Section 4.3, Vegetation, maintenance of access roads would have the potential to introduce invasive plant species into adjacent areas which could result in the degradation of additional habitat. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these indirect impacts.

Wildlife Movement or Nursery Sites

Impacts on wildlife movement and nursery sites would be similar as those discussed for *Special Status Wildlife Species*. Because there would be no exclusion fencing around GT-A-1, wildlife will continue to be able to move through these areas.

Local Policies or Ordinances Protecting Biological Resources

As discussed under construction of GT-A-1, the Proposed Project would be consistent with the local open space policies of the County of Riverside's General Plan.

Wildlife Management Areas

Vegetation permanently removed by GT-A-1 facilities would result in a permanent loss of habitat within the Chuckwalla DWMA and Chuckwalla CHU (as discussed under construction impacts above). Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these impacts. However, after construction, wildlife species would be expected to continue to migrate into and out of the GT-A-1 footprint and could utilize areas that were temporarily disturbed during construction but were subsequently revegetated.

As discussed in Section 4.3, Vegetation, maintenance of access roads would have the potential to introduce invasive plant species into adjacent areas within the Chuckwalla DWMA and Chuckwalla CHU which could result in the degradation of habitat in this area. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these indirect impacts.

Red Bluff Substation A

Wildlife Habitat

Impacts associated with operation and maintenance of Red Bluff Substation A would be similar to those described under SF-B above.

Special Status Wildlife Species

Impacts associated with operation and maintenance of Red Bluff Substation A would be similar to those described under SF-B above. Impacts associated with the new towers installed for Red Bluff Substation A would also be similar to those described under GT-A-1.

Wildlife Movement or Nursery Sites

Impacts associated with operation and maintenance of Red Bluff Substation A would be similar to those described under SF-B above, however impacts would lower given the smaller area of impact. Impacts associated with the new towers installed for Red Bluff Substation A would also be similar to those described under GT-A-1.

Local Policies or Ordinances Protecting Biological Resources

As discussed under construction of GT-A-1, the Proposed Project would be consistent with the local open space policies of the County of Riverside's General Plan.

Wildlife Management Areas

Vegetation permanently removed by the Red Bluff Substation A facilities would result in a permanent loss of habitat within the Chuckwalla DWMA and Chuckwalla CHU (as discussed under construction impacts above). Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these indirect impacts.

As discussed in Section 4.3, Vegetation, maintenance of access roads would have the potential to introduce invasive plant species into adjacent areas within the Chuckwalla DWMA and Chuckwalla CHU which could result in the degradation of habitat in this area. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these impacts.

Summary of Operation and Maintenance Impacts

Wildlife Habitat

During operation and maintenance of Alternative 1, the presence of exclusion fencing around the Solar Farm and Red Bluff Substation A and the presence of permanent structures and access roads for GT-A-1 would represent a permanent loss of habitat for wildlife species. Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these impacts.

Lighting for SF-B and Red Bluff Substation A could disturb wildlife species in adjacent areas. Lighting, however, would be limited to shielded area-specific lighting for security for the O&M facility and the on-site substation.

As discussed in Section 4.3, Vegetation, maintenance of access roads would have the potential to introduce invasive plant species into adjacent areas which could result in the degradation of additional habitat. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these indirect impacts.

Special Status Wildlife Species

During operation and maintenance, the exclusion fencing and removal of vegetation in the area would represent a permanent loss of habitat for special status wildlife species and would affect wildlife movement in the area as well. Vegetation permanently removed by GT-A-1 facilities would also result in a permanent loss of habitat for special status wildlife species. However, after construction, special status wildlife species would be expected to continue to migrate into and out of the GT-A-1 footprint and could utilize areas that were temporarily disturbed during construction but were subsequently revegetated. Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce these impacts.

Permanent occupation of the site by employees could introduce trash into the area which could attract common ravens, predators of the desert tortoise. Implementation of the *Raven Management Plan* required in Applicant Measure WIL-3 would reduce these impacts.

Transmission line towers provide artificial perches and nest sites for raptors and ravens. Therefore, the new towers could also attract common raven to the area, predators of desert tortoise. Implementation of the *Raven Management Plan* required in Applicant Measure WIL-3 would reduce these impacts.

All transmission and subtransmission towers and poles would be designed to be avian-safe in accordance with the Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (APLIC 2006). However, installation of the towers would introduce the potential for bird strikes with the towers.

Lighting for SF-B and Red Bluff Substation A could disturb special status wildlife species in adjacent areas. Lighting, however, would be limited to shielded area-specific lighting for security.

As discussed in Section 4.3, Vegetation, maintenance of access roads would have the potential to introduce invasive plant species into adjacent areas which could result in the degradation of additional habitat. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce these indirect impacts.

Wildlife Movement or Nursery Sites

Impacts on wildlife movement and nursery sites would be similar as those discussed for *Special Status Wildlife Species*.

Local Policies or Ordinances Protecting Biological Resources

As discussed under construction of SF-B and GT-A-1, the Proposed Project would be consistent with the local open space policies of the County of Riverside's General Plan.

Wildlife Management Areas

Vegetation permanently removed by Alternative 1 would result in a permanent loss of habitat within the Chuckwalla DWMA and Chuckwalla CHU (as discussed under construction impacts above). Implementation of the *Habitat Compensation Plan* required in Applicant Measure BIO-1 and discussed in Section 4.3, Vegetation, would reduce these impacts.

As discussed in Section 4.3, Vegetation, maintenance of access roads would have the potential to introduce invasive plant species into adjacent areas within the Chuckwalla DWMA and Chuckwalla CHU which could result in the degradation of habitat in this area. Implementation of the *Integrated Weed Management Plan* required in Applicant Measure BIO-2 and discussed in Section 4.3, Vegetation, would reduce these impacts.

Decommissioning

Decommissioning impacts are expected to have similar impacts on wildlife species as those discussed under construction impacts, with the exception of the fact that no new habitat would be removed. Revegetation of the site and removal of exclusion fencing would benefit wildlife in the area.

Summary of Combined Impacts for Alternative 1

In summary, construction and decommissioning of Alternative 1 has the potential to harm several special status wildlife species listed in Table 4.4-4, including the federally and state threatened desert tortoise and the Palm Springs round-tailed ground squirrel, a federal candidate for listing. In addition, construction of Alternative 1 has the potential to have direct impacts on birds nesting in the construction footprint, including their nests, eggs, and young, which are protected by the Migratory Bird Treaty Act and California Fish and Game Code.

Removal of vegetation in all Alternative 1 areas and installation of exclusion fencing at SF-B and the Red Bluff Substation would result in permanent habitat loss for wildlife, including special status wildlife and breeding and foraging habitat for non-special status species. Exclusion fencing surrounding SF-B and Red Bluff Substation A during construction would also directly impact the movement of wildlife in the region in general. Removal of desert dry wash woodland could affect important wildlife movement corridors in the area.

Construction of Alternative 1 would also result in the temporary disturbance of 66.5 acres of the Chuckwalla DWMA and 56 acres of the Chuckwalla CHU and permanent disturbance of 131.6 acres of the Chuckwalla DWMA and 137.8 acres of the Chuckwalla CHU. The NECO plan allows for development in one percent of the BLM-administered land within the DWMA, which is approximately 465,287 acres. Therefore, the permanent development of 131.6 acres of the DWMA under Alternative 1 would represent a small percentage (0.03%) of the allowable development within the DWMA.

Trash and debris generated by construction and decommissioning activities could attract predators of desert tortoise, common ravens, to the site. Permanent occupation of the site by employees could also introduce trash into the area which could attract common ravens. Finally, transmission line towers provide artificial perches and nest sites for raptors and ravens. Therefore, the new towers could also attract common raven to the area, predators of desert tortoise.

All transmission and subtransmission towers and poles would be designed to be avian-safe in accordance with the Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (APLIC 2006). However, installation of the towers would introduce the potential for bird strikes with the towers.

Construction and decommissioning activities would increase noise and dust in adjacent areas which could have an adverse effect on the health of the wildlife species. In addition, an increase in night lighting associated with construction and operation (SF-B and Red Bluff Substation A) of Alternative 1 could disturb wildlife in adjacent areas. During construction, restricted nighttime task lighting would be used, only as necessary. The light would be shielded and focused downward to minimize glare in surrounding areas. Permanent lighting for SF-B and Red Bluff Substation A would be limited to shielded area-specific lighting for security.

As discussed in Section 4.3, Vegetation, construction, maintenance of access roads, and decommissioning activities under Alternative 1 would also have the potential to introduce invasive plant species into adjacent areas, including the Chuckwalla DWMA and Chuckwalla CHU, which could result in the degradation of additional habitat.

Because Alternative 1 was sited to avoid pristine or biologically sensitive areas and would not create any access roads that would be accessible to off-road vehicles, Alternative 1 is consistent with open space protection policies DCAP 10.1 and DCAP 10.2 of the County of Riverside's General Plan. Formal Section 7 consultation will be conducted with the U.S. Fish and Wildlife Service regarding potential Project impacts on designated critical habitat for the desert tortoise. Therefore, the Proposed Project is consistent with policy DCAP 10.3 as well.

Applicant Measures and Mitigation Measures

Implementation of Applicant Measures BIO-1, BIO-2, BIO-4, and BIO-5 and Mitigation Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce impacts on wildlife as well.

AM-WIL-1. A *Desert Tortoise Translocation Plan* (Ironwood Consulting 2010d) has been prepared for the Project and will be implemented by the Applicant to ensure that construction monitoring will be conducted by a 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 draft plan is attached as Appendix H of this document and will be reviewed and approved by BLM.

The *Desert Tortoise Translocation Plan* contains an analysis of several recipient sites for desert tortoises to be translocated from the Solar Farm site and Red Bluff Substation. The final selected recipient site will be determined by BLM, the USFWS, and CDFG.

Desert tortoises found along the linear components of the Project, including the Gen-Tie Line, Telecommunications site, and access roads will be translocated out of harm's way pursuant to USFWS guidance (Fraser 2010). Specifically, biological monitors will be present during all construction activities to ensure that active burrows are avoided. If a desert tortoise is found, the tortoise will be allowed to passively traverse the site while construction in the immediate area is halted. If the tortoise does not move out of harm's way after approximately 20 minutes, a biologist authorized to handle desert tortoise, will actively move the animal out of harm's way. Vehicles parked in desert tortoise habitat will be inspected immediately prior to being moved. If a tortoise is found beneath a vehicle, a biologist authorized to handle desert tortoise will be contacted to move the animal out of harm's way, or the vehicle will not be moved until the desert tortoise leaves of its own accord.

For desert tortoises in the Solar Farm site and Red Bluff Substation, they will be relocated using the following three phase translocation process:

- Installation of Perimeter Fencing
  - Prior to clearance surveys (see below), the perimeter of the Solar Farm site and Red Bluff Substation site will be fenced with security fencing and desert tortoise exclusion fencing. All fencing activities will be monitored by a qualified biological monitor. All fencing will be checked and repaired, as necessary, on a daily basis to ensure its integrity.
  - All individual desert tortoises found above ground during construction of the perimeter fence will be given a unique identifier, fitted with a transmitter, and placed inside the Solar Farm site.
- Clearance Surveys and Translocation
  - If construction is scheduled to commence in the non-active season for desert tortoise (approximately June 1 to September 1 and November 1 to April 1), prior to construction activities, the Solar Farm site and Red Bluff Substation site will be fenced into subsections with temporary desert tortoise exclusion fencing. Clearance surveys will then be performed for the desert tortoise within each of the subsections. If a desert tortoise or active burrow is found within a subsection, construction will not begin until the active season of the desert tortoise (approximately April 1 to June 1 and September 1 to November 1), when the species can be translocated. If two

complete passes are conducted within a subsection without detecting a desert tortoise or active burrow, construction may commence within the subsection.

All desert tortoises observed during the clearance surveys performed in the non-active season will be fitted with transmitters and translocated during the next active season.

  - If construction is scheduled to commence in the active season for desert tortoise, prior to construction activities, the Solar Farm site and Red Bluff Substation site will be fenced into subsections with temporary desert tortoise exclusion fencing. Clearance surveys will then be performed for the desert tortoise within each of the subsections. During the active season, a complete health assessment and disease testing will be performed on each individual desert tortoise found to determine if it should be translocated the recipient site or the Desert Tortoise Conservation Center. Individuals will be fitted with a transmitter and translocated to the recipient site or the Desert Tortoise Conservation Center.

- Long-term Monitoring

  - All translocated desert tortoises will be monitored at least once within 24 hours of their release, and a minimum of twice weekly for the first two weeks after translocation. Then, all translocated desert tortoises will be monitored for a period of five years, at a minimum of once a week between March 15 and May 31, twice a month from June 1 to November 15, and once a month between November 15 and March 15. During the 5-year long-term monitoring program, an equal number of resident desert tortoises at the control site will also be monitored along with the desert tortoises at the recipient site.
  - Health assessments will be conducted for all translocated individuals annually prior to overwintering (between October 15 and November 15) and subsequent to overwintering (between March 1 and April 1). A health assessment will also be completed for each translocated individual at the end of the 5-year monitoring period. Any health problems or mortalities observed will be reported to the USFWS and CDFG verbally within 48 hours or via email within 5 business days. Fresh carcasses will undergo a necropsy as directed by USFWS and CDFG and animals showing clinical signs of disease will be transported to the Desert Tortoise Conservation Center.
  - Vegetation transects will also be established in 2010 within the recipient sites and will be surveyed annually between March 15 and April 30 to measure potential changes in habitat characteristics.

- Reporting

  - During translocation, all activities will be recorded on standardized data sheets and/or digital data recorders. The Lead Biologist for the translocation effort will send emails to BLM, USFWS, CDFG, and SCE prior to the 5th day of the month summarizing the translocation activities performed the previous month. Annual project reports will also be sent to BLM, USFWS, and CDFG.

- o During long-term monitoring, all activities will be recorded on standardized data sheets and/or digital data recorders. The Lead Biologist will send brief quarterly status reports via email to BLM, USFWS, and CDFG. An annual report will also be submitted to BLM on or before January 15 so that the February 1 deadline for annual reports to the USFWS can be met. A final report will be submitted to BLM following the fifth year of monitoring, summarizing the overall success of the monitoring program.

During the construction and operations and maintenance phases of the Project, the following Best Management Practices will also be implemented by the Applicant to reduce adverse effects to desert tortoise:

1. Speed limits on all unpaved areas of the Project will be a maximum of 15 miles per hour;
2. No dogs or firearms will be allowed on the Project site during construction or operation and maintenance activities;
3. Construction and operation and maintenance activities will be limited to daylight hours to the extent possible;
4. Trash will always be contained within raptor and raven-proof receptacles and removed from the site frequently, including trash collected in vehicles in the field;
5. Water required for construction purposes will not be stored in open containers or structures and will be transported throughout the site in enclosed water trucks; and
6. Water sources for the Project (such as wells) will be checked periodically by biological monitors to ensure they are not creating open water sources by leaking or consistently overfilling trucks.

All vehicles leaking fuel or other liquids will be immediately removed to the staging area and repaired – all vehicles will carry spill materials and all spills will be cleaned up promptly and disposed of correctly.*AM-WIL-2.* A *Raven Management Plan* (Ironwood Consulting 2010e) has been prepared and will be implemented by the Applicant to minimize the potential for the project to attract ravens to the Project site. The draft plan is attached as Appendix H of this document and will be reviewed and approved by BLM.

Specifically, the following measures will be implemented by the Applicant to reduce the potential for the Project to introduce food subsidies and open water sources for the species:

1. Traffic speeds on all Project-related dirt roads will be limited to 15 miles per hour to reduce road killed animals. Biological monitors will be monitoring speeds during construction activities;
2. Refuse management will be an integral part of the construction process. A sufficient number of refuse containers will be supplied and all containers will have sealable and lockable lids with the goal of preventing strong winds from blowing garbage around, wildlife from entering refuse containers, and unauthorized people from tampering with refuse. Biological monitors will periodically check on refuse containers to ensure they are not overflowing and are being closed properly;

3. All work vehicles will have a sufficient supply of strong garbage bags to aid in collection and disposal of refuse at the end of each day into the large containers discussed above;
4. Waste management contractors will supply an adequate number of portable toilets to promote a hygienic environment;
5. Water required for construction purposes will not be stored in open containers or structures and will be transported throughout the site in enclosed water trucks; and
6. Water sources for the Project (such as wells) will be checked periodically by biological monitors to ensure they are not creating open water sources by leaking or consistently overfilling trucks.

Throughout the construction and operation and maintenance phases of the Project five years post-construction, all incidental sightings of common ravens within the Project locations will be logged either by a biological monitor (during construction) or by a designated person by Sunlight and SCE (five years post-construction). In addition, for five years following construction, nest surveys for this species will be completed at least twice each spring between March 15 and June 1, and further assessments will be performed on the ground underneath raven nests during spring months to determine the presence of any desert tortoise predation.

If monitoring data shows a potential increase in raven roosting or nesting behavior within the Sunlight Project components, additional measures will be implemented to minimize the attractiveness of the Project site to the species, including one or more of the following:

1. Bird spikes installed on top of potential perches designed to prevent birds from gaining a foothold on the perch because of their porcupine design;
2. Repellant coils installed on top of potential perches to deter birds from gaining footholds because of their destabilizing coil design;
3. Bird control wire designed so that a line or grid of variable height posts is interconnected by a wire. This creates a confusing landing area in the same spirit as trip wires used for unsuspecting people;
4. Bird netting; and/or
5. Electric shock deterrents with low voltage pulses.

Inactive nests will be dismantled and passive deterrents will be installed. For active nests, a biological monitor will determine the number of fledglings and their status of development. Once the nest is determined to no longer be active, it will be removed and passive deterrents installed. Non-lethal deterrents will be the first course of action. However, ravens may adapt quickly to avoid passive deterrents. If problem ravens are proven to be an active threat to resident desert tortoises, then they could be subject to lethal removal in coordination with BLM, USFWS, and CDFG in compliance with the Migratory Bird Treaty Act and California Fish and Game Code.

If monitoring data shows a potential increase in raven roosting or nesting behavior within the SCE Project components, SCE will coordinate with BLM, USFWS, and CDFG to determine the appropriate control measures, including continued raven nest monitoring and/or contribution to a region-wide raven control plan.

On or before January 15th of each calendar year of monitoring, an annual report will be submitted to BLM that summarizes all monitoring activities sufficient for the BLM to provide necessary reporting to the USFWS and CDFG during their annual permitting report, due on or before February 1 of each year.

AM-WIL-3. An *Avian and Bat Protection Plan* (Ironwood Consulting 2010f) has been prepared and will be implemented by the Applicant to specify necessary actions to be taken to protect nesting bird and bat species. The draft plan is attached as Appendix H of this document and will be reviewed and approved by BLM.

The following measures will be implemented by the Applicant to protect burrowing owls in the Project locations during construction:

- Phase III burrow surveys will be completed within 30 days prior to planned construction in each construction unit and within a 150-meter (500 foot) buffer area.
- All active burrowing owl nests will be avoided with a buffer of 100 meters (330 feet) during the nesting season (February 1 – August 31st). Outside nesting season or after determining that a nest has failed or young have fledged, owls will be passively relocated after concurrence of specific methods by CDFG. Passive relocation will include:
  - Identifying suitable relocation sites within one mile of the Project area;
  - Creating or enhancing at least two natural or artificial burrows per relocated owl;
  - Passively relocating burrowing owls; and
  - Monitoring and reporting the results of the passive relocation.

The following measures will be implemented by the Applicant to protect nesting bird species in the Project locations during construction which are protected by the Migratory Bird Treaty Act and California Fish and Game Code Sections 3503 and 3513:

- Pre-construction surveys will be completed in the Project locations and in adjacent habitat areas and any nests observed will be identified and clearly marked. For passerines, an exclusion area where construction will not be allowed to commence will be established approximately 100 meters (330 feet) from any active nest. For raptors, the exclusion area will be established approximately 1.6 kilometers (one mile) from any active nest (excluding nests of the common raven). Nests will be checked within a week prior to planned construction to determine nest success and whether young have fledged. The exclusion boundary will not be removed until the biological monitor has determined that the nest has failed or young have fledged.
- Vegetation clearing will be conducted outside of the bird breeding season (approximately February 1 to August 31) to the maximum extent practicable, taking into account the necessary timing of conservation measures for other species, including the desert tortoise.
- Biological monitors will be present on-site during all phases of construction and will be tasked with monitoring avian nesting in adjacent habitats. If nests are found, the same procedures would be used as discussed above for pre-construction surveys.

The following measures will be implemented by the Applicant to protect roosting bats in the Project locations during construction:

- Pre-construction surveys will be completed in the Project locations and adjacent habitat areas and any active bat colonies will be identified and clearly marked. An exclusion area will be established approximately 50 meters (165 feet) from any active colony, and whenever possible, these areas will be avoided during construction activities.

For five years post-construction, the Applicant will record incidental sightings of raptors and bats in the Project locations. In addition, the Applicant will conduct nest surveys within the Project locations at least twice each spring between March 1 and June 1, separated by at least 30 days where all project-related infrastructure will be inspected for active and inactive raptor nests. The Applicant will submit quarterly status reports via email to BLM, USFWS, and CDFG. On or before January 15th of each calendar year, an annual report will be submitted to BLM that summarizes all monitoring activities sufficient for BLM to provide necessary reporting to the USFWS and CDFG in their annual permitting report, due on or before February 1st of each year. These reports may include recommendations for future adaptive management actions.

CEQA Significance Determination

Solar Farm Layout B

Impact WIL-1 – Direct and Indirect Impacts to Wildlife Habitat

The permanent loss of vegetation within construction areas and the installation of exclusion fencing would constitute permanent habitat loss and would be considered a significant impact on wildlife habitat. However, implementation of the measures in the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 as discussed in Section 4.3, Vegetation, would ensure that the loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. Therefore, impacts would be reduced to less than significant levels.

Construction and decommissioning activities would increase dust in adjacent areas which could have an adverse effect on the health of wildlife species. Impacts would be significant. However, implementation of dust control measures discussed in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

An increase in night lighting associated with construction and operation of SF-B could disturb wildlife in adjacent areas. However, during construction, restricted nighttime task lighting would be used, only as necessary. The light would be shielded and focused downward to minimize glare in surrounding areas. Permanent lighting for SF-B would be limited to shielded area-specific lighting for security. Due to the limited amount of lighting that would be used and the fact that lighting would be shield and focused downward (thus minimizing the lighted area), potential impacts would be less than significant.

Noise associated with construction and decommissioning activities could disrupt wildlife species in adjacent areas. However, the majority of these activities would occur in daylight hours and would be temporary. Therefore, impacts would be less than significant.

As discussed in Section 4.3, Vegetation, construction, maintenance of access roads, and decommissioning activities under Alternative 1 would also have the potential to introduce invasive plant species into adjacent areas, which could result in the degradation of additional habitat. Impacts would be significant. However, implementation of the measures in the *Integrated Weed Management Plan* included in Appendix H and required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce impacts to less than significant levels.

Impact WIL-2– Direct and Indirect Impacts to Special Status Wildlife Species

Potential harm to individual special status wildlife species, including the desert tortoise; chuckwalla and rosy boa; bird nests, eggs, and young; roosting bats; and fossorial mammals such as the Palm Springs round-tailed ground squirrel, Colorado Valley woodrat, and American badger; during construction and decommissioning activities would be adverse and significant. Construction monitoring and translocation of desert tortoises to a suitable location using proper methods would be implemented as required in the *Desert Tortoise Translocation Plan* required in Applicant Measure WIL-1. Rather than translocating burrowing owls, nesting bird species, or roosting bats, buffers would established around burrows, nests, and roosts to protect these individuals as stipulated in an *Avian and Bat Protection Plan* required in Applicant Measure WIL-3; areas occupied by the burrowing owl will also be mitigated at 6.5 acres per occupied burrow as stipulated in the *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation. Finally, the *Worker Environmental Awareness Program* required in Applicant Measure BIO-4 in Section 4.3, Vegetation, would further ensure that construction personnel are properly trained to avoid harming special status wildlife species. Implementation of these measures would ensure that potential direct impacts on desert tortoise, burrowing owls and other nesting bird species, and roosting bats are reduced to less than significant levels. Potential impacts on the chuckwalla, rosy boa, Palm Springs round-tailed ground squirrel, Colorado Valley woodrat, and American badger, however, would remain significant because they are not specifically protected in the applicant measures discussed above. Therefore, construction monitoring will be required in Mitigation Measure BIO-1, to ensure that these other special status wildlife species are either actively or passively relocated if found within the construction areas. Implementation of Mitigation Measure BIO-1 would ensure that impacts are reduced to less than significant levels.

The permanent loss of vegetation within construction areas and the installation of exclusion fencing would constitute permanent habitat loss as discussed above and would be considered a significant impact on all of the special status wildlife species listed in Table 4.4-4. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 as discussed in Section 4.3, Vegetation, would ensure that the loss of this habitat is adequately compensated for and equivalent habitat would be protected offsite. Therefore, impacts would be reduced to less than significant levels.

Trash and debris generated by construction and decommissioning activities could attract predators of desert tortoise, common ravens, to the site. Permanent occupation of the site by employees could also introduce trash into the area which could attract common ravens. Because one reason for the decline of the desert tortoise is predation by common ravens, these impacts would be significant. However, implementation of a *Raven Management Plan* required in Applicant Measure WIL-2 would reduce these impacts to less than significant levels.

Construction and decommissioning activities would increase dust in adjacent areas which could have an adverse effect on the health of wildlife species. Impacts would be significant. However, implementation of dust control measures discussed in Section 4.2, Air Resources, would reduce impacts to less than significant levels.

An increase in night lighting associated with construction and operation of SF-B could disturb wildlife in adjacent areas. However, during construction, restricted nighttime task lighting would be used, only as necessary. The light would be shielded and focused downward to minimize glare in surrounding areas. Permanent lighting for SF-B would be limited to shielded area-specific lighting for security. Due to the limited amount of lighting that would be used and the fact that lighting would be shield and focused downward, potential impacts would be less than significant.

Noise associated with construction and decommissioning activities could disrupt wildlife species in adjacent areas. However, the majority of these activities would occur in daylight hours and would be temporary. Therefore, impacts would be less than significant.

As discussed in Section 4.3, Vegetation, construction, maintenance of access roads, and decommissioning activities under Alternative 1 would also have the potential to introduce invasive plant species into adjacent areas, which could result in the degradation of additional habitat. Impacts would be significant. However, implementation of an *Integrated Weed Management Plan* required in Applicant Measure BIO-2 discussed in Section 4.3, Vegetation, would reduce impacts to less than significant levels.

Impact WIL-3– Direct and Indirect Impacts to Wildlife Movement or Nursery Sites

Direct and indirect impacts on wildlife nursery sites would be similar to those discussed under *Special Status Wildlife Species* above. Impacts would be adverse and significant. However, implementation of the applicant measures and mitigation measure discussed under *Special Status Wildlife Species* above would ensure that impacts are reduced to less than significant levels.

Desert dry wash woodland, are likely important areas for wildlife movement within SF-B, and would be directly impacted by construction. Exclusion fencing surrounding the entire 4,245 acre site would also directly impact the movement of wildlife in the region in general. Therefore, impacts would be significant. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 as discussed in Section 4.3, Vegetation, would ensure that the loss of these areas is adequately compensated for and equivalent habitat would be protected offsite. Therefore, impacts would be reduced to less than significant levels.

Impact WIL-4– Local Policies or Ordinances Protecting Biological Resources

There would be no construction, operation and maintenance, or decommissioning impacts under criterion WIL-4.

Impact WIL-5– Wildlife Management Areas

SF-B is not within either the Chuckwalla DWMA or Chuckwalla CHU, therefore, no vegetation removal would occur in these areas from installation of SF-B. The western edge of SF-B is adjacent to the Chuckwalla DWMA, and construction activities have the potential to directly and indirectly impact species utilizing this protected area as a result of noise, night lighting, dust, and the potential to introduce invasive plant species. Impacts would be similar to those impacts on *Special Status Wildlife Species* discussed above and would be significant. However, implementation of the applicant measures for these impacts as discussed under *Special Status Wildlife Species*, above, would reduce impacts to less than significant levels.

Gen-Tie Line A-1

Impact WIL-1 – Direct and Indirect Impacts to Wildlife Habitat

Impacts would be similar to those discussed under SF-B with the exception of the fact that no exclusion fencing would be installed along GT-A-1. The loss of habitat in the locations of the permanent structures and access road for GT-A-1 would be much less than under the Solar Farm site, nevertheless, impacts would be significant. As under SF-B, impacts associated with noise, light, dust, and the potential to introduce invasive species would also be significant. Implementation of the applicant measures discussed under SF-B above, however, would reduce impacts to less than significant levels.

Impact WIL-2– Direct and Indirect Impacts to Special Status Wildlife Species

Impacts would be similar to those discussed under SF-B with the exception of the fact that no exclusion fencing would be installed along GT-A-1. As a result, potential harm to individual special status wildlife species could occur during maintenance of access roads for GT-A-1. As discussed under SF-B, impacts would be significant, and would be greater during operations and maintenance than under SF-B. However, the *Worker Environmental Awareness Program* implemented as required in Applicant Measure BIO-4 in Section 4.3, Vegetation, would reduce potential impacts associated with maintenance of the access roads to less than significant levels. All other significant impacts would be mitigated to less than significant levels by implementation of the applicant measures and mitigation measure discussed under SF-B.

In addition, all transmission and subtransmission towers and poles would be designed to be avian-safe in accordance with the Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (APLIC 2006), installation of the towers introduces the potential for bird strikes with the towers. However, because the risk of bird strikes is low, impacts would be less than significant.

Transmission line towers provide artificial perches and nest sites for raptors and ravens. Therefore, the new towers could also attract common raven to the area, predators of desert tortoise. Because one reason for the decline of the desert tortoise is predation by ravens, impacts would be significant. However, implementation of a *Raven Management Plan* required in Applicant Measure WIL-3 would reduce these impacts to less than significant levels.

Impact WIL-3– Direct and Indirect Impacts to Wildlife Movement or Nursery Sites

Potential direct and indirect impacts on nursery sites would be similar to those discussed under SF-B. Impacts would be significant, but with implementation of applicant measures discussed under SF-B, impacts would be reduced to less than significant levels.

Exclusion fencing would not be installed around the GT-A-1 site, therefore, although disturbance due to construction activities would still occur, movement through the construction zone would not be physically disrupted. However, a significant acreage of desert dry wash woodland would be impacted by GT-A-1, which would affect wildlife movement in the region. In addition, impacts on the Chuckwalla DWMA and Chuckwalla CHU discussed below, could also adversely affect the migration of desert tortoise and other wildlife within these important wildlife movement areas. Therefore, impacts would be significant. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 as discussed in Section 4.3, Vegetation, would ensure that the loss of these areas is adequately compensated for and equivalent habitat would be protected offsite. Therefore, impacts would be reduced to less than significant levels.

Impact WIL-4– Local Policies or Ordinances Protecting Biological Resources

There would be no construction, operation and maintenance, or decommissioning impacts under criterion WIL-4.

Impact WIL-5– Wildlife Management Areas

Construction of GT-A-1 would temporarily impact 38.5 acres of the Chuckwalla DWMA and 28 acres of the Chuckwalla CHU. Further, GT-A-1 would permanently impact 3.6 acres and 9.8 acres within the Chuckwalla DWMA and CHU, respectively. The NECO plan allows for development in one percent of the BLM-administered land within the DWMA, which is approximately 465,287 acres. Therefore, the permanent development of 3.6 acres in the DWMA under GT-A-1 would represent a negligible percentage (0.0008%) of the allowable development within the DWMA. Nevertheless, impacts on these Wildlife Management Areas would be significant given the sensitivity of these areas for the desert tortoise and wildlife movement. However, implementation of a *Habitat Compensation Plan* required in Applicant Measure BIO-1 as discussed in Section 4.3, Vegetation, would reduce this impact to less than significant levels.

Other direct and indirect impacts would be similar to those discussed for SF-B and would be significant. Implementation of the applicant measures discussed under SF-B would reduce impacts to less than significant levels.

Red Bluff Substation A

Impact WIL-1 – Direct and Indirect Impacts to Wildlife Habitat

Impacts would be similar to those discussed for SF-B and would be significant. Implementation of the applicant measures discussed under SF-B would reduce impacts to less than significant levels.

Impact WIL-2– Direct and Indirect Impacts to Special Status Wildlife Species

Impacts would be similar to those discussed for SF-B and would be significant. Implementation of the applicant measures and mitigation measure discussed under SF-B would reduce impacts to less than significant levels.

In addition, all transmission and subtransmission towers and poles would be designed to be avian-safe in accordance with the Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (APLIC 2006), installation of the towers introduces the potential for bird strikes with the towers. However, because the risk of bird strikes is low, impacts would be less than significant.

Transmission line towers provide artificial perches and nest sites for raptors and ravens. Therefore, the new towers could also attract common raven to the area, predators of desert tortoise. Because one reason for the decline of the desert tortoise is predation by ravens, impacts would be significant. However, implementation of a *Raven Management Plan* required in Applicant Measure WIL-3 would reduce these impacts to less than significant levels.

Impact WIL-3– Direct and Indirect Impacts to Wildlife Movement or Nursery Sites

Impacts on nursery sites would be similar to those discussed for SF-B, and although the acreage of disturbance within the Red Bluff Substation A is much smaller than under SF-B, impacts would still be significant. Implementation of the applicant measures discussed under SF-B, however, would reduce significant impacts to less than significant levels.

Although the Red Bluff Substation A is much smaller than SF-B, it would also be fenced in and construction of it would remove desert dry wash woodland. In addition, impacts on the Chuckwalla DWMA and Chuckwalla CHU discussed below, could also adversely affect the migration of desert tortoise and other wildlife within these important wildlife movement areas. Therefore, impacts would be significant. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 as discussed in Section 4.3, Vegetation, would ensure that the loss of these areas is adequately compensated for and equivalent habitat would be protected offsite. Therefore, impacts would be reduced to less than significant levels.

Impact WIL-4– Local Policies or Ordinances Protecting Biological Resources

There would be no construction, operation and maintenance, or decommissioning impacts under criterion WIL-4.

Impact WIL-5– Wildlife Management Areas

Construction activities would temporarily impact 28 acres and permanently impact 128 acres within the Chuckwalla DWMA and CHU, respectively. The NECO plan allows for development in one percent of the BLM-administered land within the DWMA, which is approximately 465,287 acres. Therefore, the permanent development of 128 acres in the DWMA under Red Bluff Substation A would represent a small percentage (0.03%) of the allowable development within the DWMA. Nevertheless, impacts on these Wildlife Management Areas would be significant given the sensitivity of these areas for the desert tortoise and for wildlife movement. However, implementation of a *Habitat Compensation Plan* required in Applicant Measure BIO-1 discussed in Section 4.3, Vegetation, would reduce this impact to less than significant levels.

Other direct and indirect impacts would be similar to those discussed for SF-B and would be significant. Implementation of the applicant measures discussed under SF-B would reduce impacts to less than significant levels.

Unavoidable Adverse Effects

With implementation of applicant measures and Mitigation Measure BIO-1, there would be no unavoidable significant impacts with Alternative 1.

4.4.4 Alternative 2 – Alternate Action

Construction, operation and maintenance, and decommissioning impacts on wildlife resources for SF-B would be identical to those described under Alternative 1, and construction, operation and maintenance, and decommissioning impacts on wildlife resources for GT-B-2 and Red Bluff Substation B would be similar to those described under Alternative 1.

The main difference in impacts associated with the Gen-Tie Lines and Substations between Alternative 1 and Alternative 2 occur with slight differences in the amount of habitat disturbance as summarized in Tables 4.3-1 and 4.3-2 and slight differences in the special status species that have been observed in these areas as summarized in Tables 4.4-2 and 4.4-6. However, all of the same special status species have the potential to occur in the Gen-Tie Lines and Substations for both alternatives, with the exception of the rosy boa and chuckwalla which are not expected to occur in the Alternative 2 site. As discussed in Section 3.4, the most active desert tortoise sign was observed within the footprint of Alternative 2 as compared with Alternative 1 and Alternative 3. Therefore, Alternative 2 would have the greatest potential for impacts to this species.

In addition, the acreages of disturbance to Chuckwalla DWMA and Chuckwalla CHU are lower than those acreages affected by Alternative 1, as discussed in Tables 4.4-6 and 4.4-7.

Table 4.4-6
Summary of Construction Impacts on Special Status Wildlife Species under Alternative 2

Species	Solar Farm B	Gen-Tie Line B-2	Red Bluff Substation B
Reptiles			
Desert tortoise	C (22/6)	C (0/2)	C (6/8)
Rosy boa	U	U	U
Chuckwalla	U	U	U
Birds			
Burrowing owl	C	P	C
Northern harrier	C	P	P
Loggerhead shrike	C (17)	C (10)	C (4)
LeConte's thrasher	C (2)	P	P
Short-eared or long-eared owl	P	P	P
Golden eagle	P	P	P

Table 4.4-6 (continued)
Summary of Construction Impacts on Special Status Wildlife Species under Alternative 2

Species	Solar Farm B	Gen-Tie Line B-2	Red Bluff Substation B
Mammals			
Palm Springs round-tailed ground squirrel	P	C	P
Pallid bat	P	P	P
Western mastiff bat	P	P	P
Pocketed free-tailed bat	P	P	P
Townsend's big-eared bat	P	P	P
California leaf-nosed bat	P	P	P
Mountain lion	P	P	P
Colorado Valley woodrat	P	P	P
Nelson's bighorn sheep	P	P	P
Burro deer	P	P	P
American badger	P	P	P

Note: Numbers of individuals observed shown in parentheses, except for the desert tortoise where the number of active burrows is shown first followed by the number of live tortoises observed.
Potential for occurrence:
U: Unlikely
P: Potential
C: Confirmed

Table 4.4-7
Summary of Construction Impacts on Wildlife Management Areas under Alternative 2

Species	Solar Farm B	Gen-Tie Line B-2	Red Bluff Substation B
Chuckwalla DWMA			
Temporary disturbance acreage	0	48.4	0
Permanent disturbance acreage	0	7.4	0
Subtotal (acres)	0	55.8	0
Chuckwalla CHU			
Temporary disturbance acreage	0	23.9	0
Permanent disturbance acreage	0	5.5	91
Subtotal (acres)	0	29.4	91
Total (acres)	**0**	**85.2**	**91**

Applicant Measures and Mitigation Measures

The applicant measures and mitigation measures would be the same as those described under Alternative 1.

CEQA Significance Determination

The CEQA significance determinations for Alternative 2 would be the same as those discussed under Alternative 1.

Unavoidable Adverse Effects

With implementation of applicant measures and Mitigation Measure BIO-1, there would be no unavoidable significant impacts with Alternative 2.

4.4.5 Alternative 3 – Reduced Footprint Alternative

Construction, operation and maintenance, and decommissioning impacts on wildlife resources under Alternative 3 would be similar to those described under Alternative 1.

The main difference in impacts between Alternative 1 and Alternative 3 is the fact that SF-C is smaller than SF-B and was designed to avoid the greatest concentration of active desert tortoise sign observed during surveys completed for the Proposed Project. As discussed in Section 3.4, the least active desert tortoise sign was observed within the footprint of Alternative 3 as compared with Alternative 1 and Alternative 2. As a result, less wildlife habitat would be disturbed under Alternative 3 as summarized in Tables 4.3-1 and 4.3-2. Another difference occurs with slight differences in the special status species that have been observed in Alternative 1 versus Alternative 3 as summarized in Tables 4.4-2 and 4.4-8. However, all of the same special status species have the potential to occur in areas for both alternatives.

In addition, the acreages of disturbance to Chuckwalla DWMA and Chuckwalla CHU are lower than those acreages affected by Alternative 1 (but higher than those acreages under Alternative 2), as discussed in Tables 4.4-8 and 4.4-9.

Applicant Measures and Mitigation Measures

The applicant measures and mitigation measures would be the same as those described under Alternative 1.

CEQA Significance Determination

The CEQA significance determinations for Alternative 3 would be the same as those discussed under Alternative 1.

Unavoidable Adverse Effects

With implementation of applicant measures and Mitigation Measure BIO-1, there would be no unavoidable significant impacts with Alternative 3.

Table 4.4-8
Summary of Construction Impacts on Special Status Wildlife Species under Alternative 3

Species	Solar Farm C	Gen-Tie Line A-2	Red Bluff Substation A
Reptiles			
Desert tortoise	C (7/2)	C (1/0)	C (1/0)
Rosy boa	U	U	P
Chuckwalla	U	U	C
Birds			
Burrowing owl	C	P	C
Northern harrier	C	P	C
Loggerhead shrike	C (17)	C (2)	C (5)
LeConte's thrasher	C (2)	P	P
Short-eared or long-eared owl	P	P	P
Golden eagle	P	P	P
Mammals			
Palm Springs round-tailed ground squirrel	P	P	P
Pallid bat	P	P	P
Western mastiff bat	P	P	P
Pocketed free-tailed bat	P	P	P
Townsend's big-eared bat	P	P	P
California leaf-nosed bat	P	P	P
Mountain lion	P	P	P
Colorado Valley woodrat	P	P	P
Nelson's bighorn sheep	P	P	P
Burro deer	P	P	P
American badger	P	P	P

Note: Numbers of individuals observed shown in parentheses, except for the desert tortoise where the number of active burrows is shown first followed by the number of live tortoises observed.
Potential for occurrence:
U: Unlikely
P: Potential
C: Confirmed

Table 4.4-9
Summary of Construction Impacts on Wildlife Management Areas under Alternative 3

Species	Solar Farm C	Gen-Tie Line A-2	Red Bluff Substation A
Chuckwalla DWMA			
Temporary disturbance acreage	0	11.9	28
Permanent disturbance acreage	0	1.4	128
Subtotal (acres)	0	13.3	156
Chuckwalla CHU			
Temporary disturbance acreage	0	13.6	28
Permanent disturbance acreage	0	3.6	128
Subtotal (acres)	0	17.2	156
Total (acres)	**0**	**30.5**	**312**

4.4.6 Alternative 4 – No Issuance of a Right-of-Way Grant (No Action)

Under this alternative, the Proposed Project (including the Solar Farm, Gen-Tie Line, and Red Bluff Substation) would not be approved by the BLM and BLM would not amend the CDCA Plan. As a result, no 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 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 new ground disturbance. As a result, none of the impacts on biological resources from construction or operation of the Proposed Project would occur. However, the land on which the Project is proposed would become available to other uses that are consistent with BLM's land use plan, including another solar project requiring a land use plan amendment. In addition, in the absence of this Project, other renewable energy projects may be constructed to meet state and federal mandates, and those projects would have similar impacts on this or in other locations.

4.4.7 Alternative 5 – No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Exclude Solar Energy Development on the Site (No Action with Plan Amendment)

Under this alternative, the Proposed Project (including the Solar Farm, Gen-Tie Line, and Red Bluff Substation) 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, 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 the CDCA Plan would be amended to make the area unavailable for future solar energy development, 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 new ground disturbance. As a result, the biological resources of the site are not expected to change noticeably from existing conditions and, as such, this No Action Alternative would have no adverse impact to biological resources at the site in the long term. However, in the absence of this Project, other renewable energy projects may be constructed to meet state and federal mandates, and those projects would have similar impacts on this or in other locations.

4.4.8 Alternative 6 – No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Allow Solar Development on the Site (No Action with Plan Amendment)

Under this alternative, the proposed Project (including the Solar Farm, Gen-Tie Line, and Red Bluff Substation) would not be approved by the BLM and the BLM would amend the CDCA Plan to allow for other solar projects on the site. As a result, it is possible that another solar energy project could be constructed on the Project site.

Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. As a result, biological impacts would result from the construction and operation of the solar technology and resulting ground disturbance and would likely be similar to the biological impacts from the Proposed Project. Different solar technologies require different amounts of grading; however, it is expected that all solar technologies would require grading and maintenance. As such, this No Action Alternative could result in biological impacts similar to the impacts under the Proposed Project.

4.4.9 Cumulative Impacts

Geographic Scope

This cumulative impact analysis makes a broad, regional evaluation of the impacts of existing and reasonably foreseeable future projects that threaten animal 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 wildlife because it the California portion of the Sonoran Desert ecosystem. The NECO planning area, which is located in the southeastern CDCA, encompasses over 5 million acres and hosts 60 sensitive plant and animal species..

Regional Overview

This overview of regional impacts is followed by a more detailed discussion of the effects of past, present, and future projects to biological resources of the Project vicinity, with an emphasis on resources found within the Chuckwalla Valley of eastern Riverside County.

The California Desert remained a desolate area for the first few decades of the 20th century. Disturbance was more or less restricted to highways, railroad, and utility corridors, scattered mining, and sheep grazing. In the 1940s, several large military reservations were created for military training, testing, and staging areas. The deserts of eastern Riverside County comprise 40% of the County's land area but less than 1% of its 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; most of the lands are administered by the BLM.

Populations of many of the desert's sensitive wildlife were considered relatively stable until recently, and the push for large-scale renewable energy development has further placed many populations at risk. Energy providers have submitted project applications that would collectively cover more than one million acres of the region. However, renewable energy development has its own ecological consequences and portions of the Sonoran and Mojave deserts of California are bearing the brunt of these effects. Poorly planned development could contribute to habitat loss and fragmentation and barriers to species movement and gene flow. Although project permitting and regional planning evaluate basic environmental impacts of such projects, rarely do they consider impacts on connectivity, conduct thorough cumulative effects analyses, or implement regional monitoring of effects or the efficacy of mitigation.

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, western burrowing owl, and a wide variety of special-status wildlife. Approximately 120 and 116 acres of the Project overlaps the northern boundary of the Chuckwalla Desert Tortoise CHU and Chuckwalla DWMA, respectively.

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 2002a). Combined with the effects of historical grazing and military training, and fragmentation of habitat and interruption of wildlife movement from highway and aqueduct construction, the proposed wind and solar energy projects have the potential to further reduce and degrade native plant and animal populations. In the context of this large-scale habitat loss, the Desert Solar Project would contribute, at least incrementally, to the cumulative loss and degradation of habitat for wildlife, including desert tortoise and resident and migratory birds, in the Chuckwalla Valley and NECO planning area.

Existing Cumulative Conditions

Details of the biological resources within the cumulative study area are summarized here and provided more fully in Section 3.4, Wildlife. The NECO planning area is located mostly within 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, desert wash, and sand dunes. The cumulative impacts area also includes several dry lake beds, numerous drainages, and areas relatively devoid of native vegetation including developed areas, paved roads, highways, access roads, and other disturbed areas. Invasive and noxious weed species have been identified throughout the cumulative impacts area.

The area supports habitat for, and populations of, numerous special status wildlife species, as described in Section 3.4, Wildlife. These include species under federal and/or state protection, including desert tortoise, golden eagle, burrowing owl, and other sensitive species in California.

Past, Present, and Reasonably Foreseeable Future Projects

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. Ongoing development in the area is dominated by renewable energy development. 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 several transmission line and non-renewable energy development, as well as residential and commercial development.

In addition to one-time construction impacts, the projects would have ongoing operational impacts on biological resources. Therefore, all projects that might contribute impacts over time in the cumulative area are considered for this analysis. This would include non-renewable energy, transmission lines, wind power, and solar power projects.

Cumulative Impact Analysis

Impact WIL-1 – Direct and Indirect Impacts to Wildlife Habitat

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. As discussed in detail in Section 4.3, Vegetation, existing and foreseeable future projects in the NECO planning area would result in the total projected loss of 6.2 percent of the Sonoran creosote bush scrub and 7.5 percent of the desert dry wash woodland habitat in the NECO planning area. This would not only constitute a significant cumulative impact on these vegetation communities, but also on wildlife habitat through direct habitat loss and habitat fragmentation. As shown in Table 4.3-18, implementation of Alternatives 1, 2, and 3 would contribute between 1.4 and 1.9 percent to this cumulative impact on Sonoran creosote bush scrub and between 0.20 to 0.21 percent to the cumulative impact on desert dry wash woodland. Due to the sensitivity of these vegetation communities as wildlife habitat, Alternatives 1, 2, and 3 would have a considerable contribution to cumulative impacts on wildlife habitat. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of both of these vegetation communities is adequately compensated for and equivalent habitat would be protected offsite. Therefore, with implementation of this measure, the Project's contribution to cumulative impacts would be reduced to less than significant levels.

Impact WIL-2– Direct and Indirect Impacts to Special Status Wildlife Species

Similar to the cumulative impacts discussion on wildlife habitat above, the Project's contribution to cumulative impacts on habitat for special status species would be considerable. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of creosote bush scrub and desert dry wash woodland is adequately compensated for and equivalent habitat would be protected offsite. Therefore, with implementation of this measure, the Project's contribution to cumulative impacts on wildlife habitat would be reduced to less than significant levels.

Harm or harassment of the special status species in the Project locations would be considered a significant project-specific impact, but would be mitigated to less than significant levels by relocating individuals found in the Project locations, or by protecting them in place until they vacate the Project locations (such as nesting birds). The health of the desert tortoises that are relocated will also be monitored for a five year period after construction pursuant to the *Desert Tortoise Relocation Plan* required in Applicant Measure WIL-1. Given the numbers of individuals of special status species expected in the Project locations (summarized in Table 4.4-2), and the provisions that will be taken to protect these individuals, the Project is not anticipated to affect these special status species at the population level other than through habitat loss. Therefore, other than habitat loss, the

Project is not anticipated to have a considerable contribution to cumulative impacts on populations of the special status species.

Impact WIL-3– Direct and Indirect Impacts to Wildlife Movement or Nursery Sites

As discussed above in the cumulative impacts discussion on wildlife habitat, the Project would have a considerable contribution to the cumulative loss of wildlife habitat in the NECO planning area. Therefore, the Project would have a considerable contribution to the cumulative loss of breeding habitat for wildlife in the NECO planning area as well. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of creosote bush scrub and desert dry wash woodland is adequately compensated for and equivalent habitat would be protected offsite. Therefore, with implementation of this measure, the Project's contribution to cumulative impacts on wildlife habitat would be reduced to less than significant levels.

Desert dry wash woodlands, are likely important areas for wildlife movement within Project locations and would be directly impacted by construction. Exclusion fencing surrounding the Solar Farm and Red Bluff Substation would also directly impact the movement of wildlife in the region in general. Finally, impacts on the Chuckwalla DWMA and Chuckwalla CHU could adversely impact important movement corridors for the desert tortoise and other wildlife species in these areas. Therefore, the Project would have a considerable contribution to cumulative impacts on wildlife movement in the areas. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that loss of these areas is adequately compensated for and equivalent habitat would be protected offsite. Therefore, with implementation of this measure, the Project's contribution to cumulative impacts on wildlife movement corridors would be reduced to less than significant levels.

Impact WIL-4– Local Policies or Ordinances Protecting Biological Resources

Because the Proposed Project would be consistent with the local open space policies of the County of Riverside's General Plan, there would be no project-specific or cumulative impacts.

Impact WIL-5– Wildlife Management Areas

As discussed above, 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 significant cumulative impacts on wildlife management areas due to habitat loss from ground disturbance as described above. Implementation of Alternatives 1, 2, and 3 would temporarily disturb 65, 48.4, and 39.9 acres of the Chuckwalla DWMA and temporarily disturb 56, 23.9, and 41.6 acres of the Chuckwalla CHU, respectively. Implementation of Alternatives 1, 2, and 3 would permanently disturb 131.6, 7.5, and 129.4 acres of the Chuckwalla DWMA and permanently disturb 137.8, 96.5, and 131.6 acres of the Chuckwalla CHU, respectively (see Table 4.4-3). The NECO plan allows for development in one percent of the BLM-administered land within the DWMA, which is approximately 465,287 acres. Therefore, the permanent development of 131.6, 7.5, or 129.4 acres (under Alternatives 1, 2, and 3, respectively), would represent a small percentage of the allowable development within the DWMA (0.03%, 0.002%, and 0.03%). Nevertheless, the Project would have a considerable contribution to cumulative impacts on the Chuckwalla DWMA as well as the Chuckwalla CHU given the sensitivity of these areas for the desert tortoise and wildlife movement. However, implementation of the *Habitat Compensation Plan* included in Appendix H of this document and required in Applicant Measure BIO-1 would ensure that the loss of habitat in these areas is adequately compensated for and equivalent habitat would be protected offsite. Therefore, with implementation of this measure, the Project's contribution to cumulative impacts would be reduced to less than significant levels.

4.5 CLIMATE CHANGE

4.5.1 Methodology for Analysis

Climate change issues addressed for the various alternatives were identified by review of comments received during the EIS scoping process and by independent evaluation of project-related impacts. The identified issues include:

- Greenhouse gas emissions from on-site construction activity and construction-related vehicle traffic;
- Greenhouse gas emissions from facility operations and operational vehicle traffic;
- Sulfur hexafluoride emissions (a greenhouse gas) from circuit breakers at project-related substations;
- Avoided greenhouse gas emissions associated with displaced fossil fuel power generation; and
- Altered carbon storage capacity of desert soils.

Evaluation of these issues was performed through quantitative analysis of expected emissions and qualitative analyses for issues that did not lend themselves to quantitative evaluation. Quantitative analyses were prepared to address construction-related greenhouse gas emissions, greenhouse gas emissions (including sulfur hexafluoride) from facility operations, and avoided greenhouse gas emissions associated with displaced fossil fuel power generation. The construction activity and vehicle traffic emissions modeling procedures discussed previously in Section 4.2 (Air Resources) were used to estimate greenhouse gas emissions from those sources. Additional spreadsheet analyses were performed to estimate greenhouse gas emissions associated with facility operations and avoided greenhouse gas emissions associated with displaced fossil fuel power generation. The issue of carbon storage capacity of desert soils was addressed as a background topic in Chapter 3, Section 3.5

Table 4.5-1 compares major features of the action alternatives with an emphasis on features relevant to construction activities.

Table 4.5-1
Comparison of Action Alternative Features Relevant to Climate Change

Project Component	Parameter	Alternative 1	Alternative 2	Alternative 3
Solar Farm	Generating Capacity	550 MW	550 MW	413 MW
Solar Farm	Annual Power Production	1,200,000,000 kW-Hrs	1,200,000,000 kW-Hrs	901,090,909 kW-Hrs
Solar Farm	Site Acres	4,245 acres	4,245 acres	3,045 acres
Solar Farm	Direct Ground Coverage by Solar Panels	1,400 acres	1,400 acres	1,037 acres
Solar Farm	Total Surface Coverage by Project Features	1,443 acres	1,443 acres	1,074 acres

Table 4.5-1 (continued)
Comparison of Action Alternative Features Relevant to Climate Change

Project Component	Parameter	Alternative 1	Alternative 2	Alternative 3
Solar Farm	Open Portion of Developed Site	2,802 acres	2,802 Acres	1,972 acres
Solar Farm	De-compaction Area Between Solar Arrays	1,535 acres	1,535 acres	1,192 acres
Gen-Tie Transmission Line	Corridor Length	12.2 miles	9.5 miles	10 miles
Gen-Tie Transmission Line	Corridor Acres	233 acres	185 acres	189 acres
Gen-Tie Transmission Line	Number of Transmission Towers	73	55	58
Gen-Tie Transmission Line	Construction Disturbance Area	76.7 acres	62.3 acres	62.1 acres
Gen-Tie Transmission Line	Permanent Feature Area	18 acres	11 acres	23 acres
Red Bluff Substation	Substation Site Acres	75 acres	75 acres	75 acres
Red Bluff Substation	Adjacent Drainage Facility Areas	20 acres	11 acres	20 acres
Red Bluff Substation	Additional Staging Area	10 acres	10 acres	10 acres
Red Bluff Substation	Telecommunications Site Area	0.22 acres	0.22 acres	0.22 acres
Red Bluff Substation	Transmission Line Acres	5 acres	2.23 acres	5 acres
Red Bluff Substation	Distribution Line Acres	8.28 acres	0.12 acres	8.28 acres
Red Bluff Substation	Access Road Length	21,000 feet	1,800 feet	20,000 feet
Red Bluff Substation	Total Construction Disturbance Area	165.4 acres	118.2 acres	165.4 acres
Red Bluff Substation	Permanent Feature Area	127.6 acres	89.6 acres	127.6 acres

4.5.2 CEQA Significance Criteria

Under CEQA, the proposed Project would have a significant impact on climate change if it would:

CC-1 Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

CC-2 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

While no federal or state agencies have adopted quantitative greenhouse gas emissions significance criteria, the South Coast AQMD, Bay Area AQMD, and San Luis Obispo County APCD have adopted quantitative greenhouse gas emissions significance criteria. The SCAQMD has adopted an interim greenhouse gas emissions significance threshold for industrial projects but has deferred action on adopting greenhouse gas emissions significance thresholds for residential, commercial, or other non-industrial projects. The SCAQMD criteria only apply to industrial projects when the AQMD is the lead agency under CEQA. The SCAQMD greenhouse gas emissions threshold adopted is 11,023 tons per year (10,000 metric tons per year) carbon dioxide equivalent (CO_2e), considering combined construction and operational emissions with total construction emissions averaged over 30 years. The SCAQMD is not the lead agency under CEQA for the Desert Sunlight Project, and thus the SCAQMD greenhouse gas emission thresholds, do not apply in a technical sense. Nevertheless, the SCAQMD greenhouse gas threshold values provide a point of comparison for project-related greenhouse gas emission estimates.

4.5.3 Alternative 1 – Proposed Action

Construction

Solar Farm Layout B

Greenhouse Gas Emissions from On-Site Construction Activities. Greenhouse gas emissions from on-site construction activity were estimated using the construction emissions spreadsheet model discussed previously in Section 4.2.3. Tables 4.5-2, 4.5-3, and 4.5-4 summarize annual greenhouse gas emissions from on-site construction activity at the solar farm site for 2011, 2012, and 2013, respectively.

Greenhouse Gas Emissions from Construction-Related Traffic. Greenhouse gas emissions from traffic related to solar farm construction have been evaluated using a combination of the URBEMIS2007 model to estimate vehicle carbon dioxide emissions and supplemental spreadsheet analyses to estimate methane and nitrous oxide emissions associated with vehicle traffic. Methane and nitrous oxide emissions for light vehicles and heavy trucks were derived from California Climate Action Registry (2007). Vehicle trips associated with construction of Solar Farm Layout B were presented previously in the Air Resources section (see Table 4.2-12).

Table 4.5-5 summarizes annual greenhouse gas emissions from construction-related traffic for Solar Farm Layout B.

Table 4.5-2
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2011, Solar Farm Layout B

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Tortoise Exclusion Fencing	44.4	0.001	0.001	44.7
Access Roads and Staging Areas	357.4	0.016	0.012	**361.2**
Construction Offices and Water/Sanitation Facilities	74.2	0.002	0.001	**74.6**
Security Fencing and Debris Basins	89.8	0.003	0.002	**90.6**

Table 4.5-2 (continued)
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2011, Solar Farm Layout B

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Site Clearing	401.4	0.013	0.009	**404.5**
Site Grading	1,855.2	0.070	0.050	**1,871.8**
Array Support Posts	393.9	0.010	0.007	**396.4**
Trenching and Underground Cables	264.7	0.008	0.006	**266.8**
Soil Compacting and Dust Palliative	786.6	0.017	0.012	**790.7**
On-Site Power Poles	20.2	0.000	0.000	**20.3**
Switchgear Facilities	99.9	0.003	0.002	**100.6**
On-Site Substation	77.1	0.003	0.003	**78.0**
Solar Array Assemblies	661.4	0.027	0.020	**668.0**
On-Site Overhead Power Lines	99.6	0.003	0.002	**100.2**
2011 Totals	**5,225.8**	**0.18**	**0.13**	**5,268.4**

* Annual Emissions for 2011, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Table 4.5-3
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2012, Solar Farm Layout B

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Access Roads and Staging Areas	115.0	0.005	0.004	**116.2**
Site Clearing	442.4	0.014	0.010	**445.6**
Site Grading	2,085.5	0.078	0.056	**2,104.1**
Array Support Posts	601.8	0.016	0.012	**605.7**
Trenching and Underground Cables	356.9	0.011	0.008	**359.5**
Soil Compacting and Dust Palliative	1,232.5	0.027	0.020	**1,239.0**
On-Site Power Poles	28.7	0.001	0.001	**28.8**
Switchgear Facilities	154.4	0.004	0.003	**155.4**
Solar Array Assemblies	1,027.5	0.041	0.031	**1,037.7**
On-Site Overhead Power Lines	156.4	0.004	0.003	**157.4**
Permanent Buildings	33.8	0.001	0.001	**34.1**
Functional Testing	160.7	0.003	0.002	**161.4**
2012 Totals	**6,395.4**	**0.21**	**0.15**	**6,444.9**

* Annual Emissions for 2012, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Table 4.5-4
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2013, Solar Farm Layout B

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Functional Testing	15.3	0.000	0.000	**15.4**
De-Compaction and Dust Palliative	68.1	0.002	0.002	**68.6**
Site Cleanup	13.6	0.001	0.000	**13.7**
2013 Totals	**97.0**	**0.00**	**0.00**	**97.7**

* Annual Emissions for 2013, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Table 4.5-5
Summary of Greenhouse Gas Emissions from Construction-Related Traffic, Solar Farm Layout B

Traffic Component	CO2*	CH4*	N2O*	GWP, CO2e*
2011 Emissions				
Construction Trucks	2,755	0.100	0.083	**2,782**
Shuttle Buses	543	0.064	0.053	**561**
Personal Vehicle Commute	639	0.071	0.071	**662**
To/From Shuttle Assembly Areas	1,088	0.122	0.122	**1,127**
2011 Total	**5,025**	**0.356**	**0.329**	**5,132**
2012 Emissions				
Construction Trucks	3,892	0.141	0.117	**3,931**
Shuttle Buses	558	0.066	0.055	**576**
Personal Vehicle Commute	774	0.086	0.086	**802**
To/From Shuttle Assembly Areas	1,233	0.138	0.138	**1,277**
2012 Total	**6,457**	**0.430**	**0.396**	**6,586**
2013 Emissions				
Construction Trucks	9	0.000	0.000	**9**
Shuttle Buses	14	0.002	0.001	**14**
Personal Vehicle Commute	19	0.002	0.002	**20**
To/From Shuttle Assembly Areas	28	0.003	0.003	**29**
2013 Total	**70**	**0.007**	**0.007**	**72**

* Annual Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Gen-Tie Line A-1

Greenhouse Gas Emissions from On-Site Construction Activities. Greenhouse gas emissions from on-site construction activity were estimated using the construction emissions spreadsheet model discussed previously. Tables 4.5-6 and 4.5-7 summarize annual greenhouse gas emissions from construction activity for 2011 and 2012, respectively.

Greenhouse Gas Emissions from Construction-Related Traffic. Vehicle trips associated with construction Transmission Line A-1 were presented previously in Table 4.2-19. Greenhouse gas emissions from construction-related traffic have been evaluated using a combination of the URBEMIS2007 model and supplemental spreadsheet analyses.

Table 4.5-8 summarizes annual greenhouse gas emissions from construction-related traffic for GT-A-1.

Table 4.5-6
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2011, Gen-Tie Line A-1

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Site Preparation	30.5	0.001	0.001	**30.8**
Tower Foundations	67.2	0.003	0.002	**67.9**
Tower Assembly and Erection	72.7	0.002	0.002	**73.2**
Power Line Stringing	119.0	0.008	0.006	**120.9**
Testing	8.8	0.001	0.001	**9.0**
2011 Totals	**298.3**	**0.01**	**0.01**	**301.9**

* Annual Emissions for 2011, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Table 4.5-7
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2012, Gen-Tie Line A-1

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Site Cleanup	2.1	0.000	0.000	**2.1**
2012 Totals	**2.1**	**0.00**	**0.00**	**2.1**

* Annual Emissions for 2012, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Table 4.5-8
Summary of Greenhouse Gas Emissions from Construction-Related Traffic, Gen-Tie Line A-1

Traffic Component	CO2*	CH4*	N2O*	GWP, CO2e*
2011 Emissions				
Construction Trucks	186	0.007	0.006	**188**
Personal Vehicle Commute	1,124	0.126	0.126	**1,164**
2011 Total	**1,310**	**0.132**	**0.131**	**1,352**

Table 4.5-8 (continued)
Summary of Greenhouse Gas Emissions from Construction-Related Traffic, Gen-Tie Line A-1

Traffic Component	CO2*	CH4*	N2O*	GWP, CO2e*
2012 Emissions				
Construction Trucks	0	0.000	0.000	**1**
Personal Vehicle Commute	12	0.001	0.001	**12**
2012 Total	**13**	**0.001**	**0.001**	**13**

* Annual Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Red Bluff Substation A

Greenhouse Gas Emissions from On-Site Construction Activities. Greenhouse gas emissions from on-site construction activity were estimated using the construction emissions spreadsheet model discussed previously. Tables 4.5-9 through 4.5-11 summarize annual greenhouse gas emissions from construction activity for 2011, 2012, and 2013, respectively.

Table 4.5-9
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2011, Red Bluff Substation A

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Access Road Construction	36.0	0.001	0.001	**36.3**
Site Fencing	9.1	0.001	0.000	**9.3**
Site Clearing	54.2	0.002	0.001	**54.6**
Grading and Compacting	128.2	0.004	0.003	**129.3**
2011 Totals	**227.6**	**0.01**	**0.01**	**229.5**

* Annual Emissions for 2011, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Table 4.5-10
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2012, Red Bluff Substation A

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Trenching and Foundations	24.4	0.001	0.001	**24.6**
Equipment Pads	88.7	0.007	0.005	**90.4**
Equipment Installation	122.5	0.008	0.006	**124.5**
Power Line Connections	45.4	0.002	0.002	**46.2**
Testing	7.0	0.001	0.001	**7.2**
2012 Totals	**288.0**	**0.02**	**0.01**	**292.8**

* Annual Emissions for 2012, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Table 4.5-11
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2013, Red Bluff Substation A

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Testing	6.9	0.001	0.001	**7.1**
Driveways, Other Paving, Security Wall	72.0	0.005	0.003	**73.1**
Site Cleanup	1.8	0.000	0.000	**1.8**
2013 Totals	**80.7**	**0.005**	**0.004**	**82.0**

* Annual Emissions for 2013, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Greenhouse Gas Emissions from Construction-Related Traffic. Vehicle trips associated with construction Red Bluff Substation A were presented previously in Table 4.2-28. Greenhouse gas emissions from construction-related traffic have been evaluated using a combination of the URBEMIS2007 model and supplemental spreadsheet analyses.

Table 4.5-12 summarizes annual greenhouse gas emissions from construction-related traffic for Red Bluff Substation A.

Table 4.5-12
Summary of Greenhouse Gas Emissions from Construction-Related Traffic, Red Bluff Substation A

Traffic Component	CO2*	CH4*	N2O*	GWP, CO2e*
		2011 Emissions		
Construction Trucks	20	0.001	0.001	**20**
Personal Vehicle Commute	409	0.046	0.046	**424**
2011 Total	**429**	**0.046**	**0.046**	**444**

Table 4.5-12 (continued)
Summary of Greenhouse Gas Emissions from Construction-Related Traffic, Red Bluff Substation A

Traffic Component	CO2*	CH4*	N2O*	GWP, CO2e*
2012 Emissions				
Construction Trucks	756	0.027	0.023	**764**
Personal Vehicle Commute	646	0.072	0.072	**669**
2012 Total	**1,402**	**0.100**	**0.095**	**1,433**
2013 Emissions				
Construction Trucks	479	0.017	0.014	**483**
Personal Vehicle Commute	139	0.016	0.016	**144**
2013 Total	**618**	**0.033**	**0.030**	**628**

* Annual Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Summary of Construction Impacts

Construction activities and associated vehicle traffic under Alternative 1 would generate emissions of greenhouse gas pollutants over a period of approximately 26 months. The Applicant proposes to implement a construction worker shuttle bus system that would greatly reduce the volume of traffic and resulting greenhouse gas emissions that would otherwise be generated by construction worker commute traffic for the solar farm.

Operation and Maintenance

Solar Farm Layout B

Greenhouse Gas Emissions from Facility Operations. Solar farm operations under Alternative 1 would be limited sources of greenhouse gas emissions. The primary sources of operational greenhouse gas emissions would be operational vehicle traffic and leaks of sulfur hexafluoride from circuit breakers and other equipment at the on-site substation and PVCS units. First Solar has estimated the leak rate for the on-site substation and PVCS facilities at 14.1 pounds per year (Lamb 2010). Table 4.5-13 summarizes annual greenhouse gas emissions from operation of Solar Farm Layout B. These greenhouse gas emissions would be more than off-set by the greenhouse gas emissions that would be avoided by using solar power generation instead of generating power from fossil fuel sources (as discussed below).

Table 4.5-13
Greenhouse Gas Emissions from Solar Farm Operations, Alternative 1

Emissions Component	CO2*	CH4*	N2O*	SF6*	GWP, CO2e*
Worker Commute Traffic	302.6	0.034	0.034	0	**313.5**
Truck Traffic	233.6	0.009	0.008	0	**236.1**
PVCS Units and On-Site Substation	0	0	0	0.0071	**160.74**
Total	**536.2**	**0.043**	**0.042**	**0.0071**	**710.4**

* Annual Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
SF6 = sulfur hexafluoride, GWP multiplier = 22,800
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Greenhouse Gas Emissions Avoided by Displacing Fossil Fuel Power Generation. The electrical power produced by the solar farm under Alternative 1 (1.2 billion kilowatt-hours per year) would be sold to SCE and PG&E, and would effectively displace power generation from other sources. Both SCE and PG&E currently use a mix of fossil fuel, nuclear, hydroelectric, geothermal, wind, solar, and biomass power generation sources. Greenhouse gas emissions avoided by the use of solar power have been estimated using the complete 2009 power mixes for these two utilities. Table 4.5-14 summarizes the results of this analysis. Additional details concerning the analysis of avoided greenhouse gas emissions are provided in Appendix D-5.

Table 4.5-14
Avoided Greenhouse Gas Emissions For SCE and PG&E, Alternative 1

Utility	Annual Power Received From Solar Farm B, kW-Hrs per Year	CO2*	CH4*	N2O*	GWP, CO2e*
SCE	545,454,545	79,678.9	4.203	0.574	**79,955.0**
PG&E	654,545,455	74,852.1	4.422	0.575	**75,133.9**
Total	**1,200,000,000**	**154,531.0**	**8.625**	**1.148**	**155,088.9**

* Avoided Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Avoided emissions based on 2009 power mix data for SCE and PG&E.
Source: Tetra Tech analyses

Changes in Greenhouse Gas Storage Potential of Desert Soils. As discussed in the Climate section of Chapter 3 (Section 3.5), desert ecosystems do not have a large capacity to store greenhouse gases. The few literature references claiming otherwise are not based on actual measurements of carbon storage in desert ecosystems. Instead, they are based on complex and error-prone mathematical computations using measurements of atmospheric carbon dioxide concentrations and various meteorological parameters. The results from some of those studies are not credible, since they indicate a carbon uptake rate that would require a doubling of desert vegetation biomass every three years. Such rapid increases in vegetation biomass were not observed at the study sites, are not typical of desert ecosystems, and could not be sustained over long periods of time. Alternative suggestions have been made that high carbon storage rates occur through accumulation of mineralized carbon (such as calcium carbonate), but no mechanism for such rapid mineralized carbon accumulation has been identified. The implied carbonate accumulation rates would quickly cement desert soils, with resulting effects on vegetation. Without corroboration by actual measurements of carbon uptake in desert ecosystems, the reports of high carbon storage potential for desert ecosystems cannot be considered credible. Since desert ecosystems have limited carbon storage potential to begin with, operation of Solar Farm B would have little impact on potential ecosystem carbon storage.

Gen-Tie Line A-1

Greenhouse Gas Emissions from Facility Operations. There are few sources of greenhouse gas emissions associated with transmission line operation. Vehicles used for periodic line inspection and necessary maintenance activities would be an intermittent and very small source of greenhouse gas emissions. Assuming two line inspections and one maintenance event per year, operational greenhouse gas emissions would be about 744 pounds (0.46 tons) per year carbon dioxide equivalent. The ozone that can be generated by corona discharge effects along high voltage transmission lines is also a greenhouse gas, but ozone in the lower atmosphere is so chemically reactive that it has a very short atmospheric lifetime and thus has little impact on climate change.

Changes in Greenhouse Gas Storage Potential of Desert Soils. As discussed above for Solar Farm B, desert ecosystems do not have a large capacity to store greenhouse gases. Consequently, operation of Gen Tie Line A-1 would have little impact on potential ecosystem carbon storage.

Red Bluff Substation A

Greenhouse Gas Emissions from Facility Operations. There are few sources of greenhouse gas emissions associated with substation operation. The primary source of operational greenhouse gas emissions would be leaks of sulfur hexafluoride from circuit breakers and other equipment at the substation. Sulfur hexafluoride gas is used as an insulating gas in circuit breakers, switchgear, and similar devices. SCE estimates that equipment at the Red Bluff Substation would contain about 9,000 pounds of sulfur hexafluoride, with an annual leak rate of 0.5 percent, or 45 pounds per year (Lamb 2010). Vehicles used for periodic facility inspection and necessary maintenance activities would be an intermittent and very small source of additional greenhouse gas emissions. The ozone that can be generated by corona discharge effects at high voltage equipment is also a greenhouse gas, but ozone in the lower atmosphere is so chemically reactive that it has a very short atmospheric lifetime and thus has little impact on climate change. The annual greenhouse gas emissions from substation operation are summarized in Table 4.5-15.

Table 4.5-15
Greenhouse Gas Emissions from Red Bluff Substation Operations, Alternative 1

Emissions Component	CO2*	CH4*	N2O*	SF6*	GWP, CO2e*
Twice Annual Inspection Traffic	0.17	0.000	0.000	0	**0.17**
Once Annual Maintenance Traffic	0.28	0.000	0.000	0	**0.28**
On-Site Substation Equipment	0	0	0	0.0225	**513.0**
Total	**0.45**	**0.000**	**0.000**	**0.0225**	**513.5**

* Annual Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
SF6 = sulfur hexafluoride, GWP multiplier = 22,800
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Changes in Greenhouse Gas Storage Potential of Desert Soils. As discussed above for Solar Farm B, desert ecosystems do not have a large capacity to store greenhouse gases. Consequently, operation of Red Bluff Substation A would have little impact on potential ecosystem carbon storage.

Summary of Operation and Maintenance Impacts

Operation and maintenance activities for the solar farm, Gen Tie Line, and Red Bluff Substation would be small sources of on-going greenhouse gas emissions. Only the solar farm facility would have on-site employees. The Gen Tie Line and Red Bluff Substation would require only infrequent inspection and maintenance activities. Electrical equipment at the solar farm site and at the Red Bluff Substation would be a source of sulfur hexafluoride leaks. The annual greenhouse gas emissions generated by operation and maintenance activities at Project facilities would be more than off-set by the avoided greenhouse gas emissions that result from solar-based electrical power generation that effectively displaces other sources of power generation. Project facilities would have little impact on potential ecosystem carbon storage.

Decommissioning

Solar Farm Layout B

Decommissioning of the solar farm 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. Because decommissioning would occur at least 30 years in the future, it is likely that equipment engine technology and fuels would be different from current technology and fuels. Consequently, it is not possible to provide reliable estimates of equipment greenhouse gas emissions from decommissioning activities.

Gen-Tie Line A-1

Decommissioning of GT-A-1 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. Most of the material removed during decommissioning would likely be recycled. Equipment used for decommissioning would generally be similar to that used for construction. Because decommissioning would occur at least 30 years in the future, it is likely that equipment engine technology and fuels would be different from current technology and fuels. Consequently, it is not possible to provide reliable estimates of equipment greenhouse gas emissions from decommissioning activities.

Red Bluff Substation A

Decommissioning of the Red Bluff Substation would require disassembly of mechanical equipment components, demolition of equipment pads and paving, and removal of the perimeter wall. 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. Because decommissioning would occur at least 30 years in the future, it is likely that equipment engine technology and fuels would be different from current technology and fuels. Consequently, it is not possible to provide reliable estimates of equipment greenhouse gas emissions from decommissioning activities.

Summary of Decommissioning Impacts

Greenhouse gas emissions from facility decommissioning would be generally similar in nature to those of facility construction, but emission quantities would likely be less than those generated by construction activities. Equipment engine greenhouse gas emissions might be considerably less than those from construction activity due to future changes in engine and fuel technology. Decommissioning activities would not require the extent of vegetation clearing and site grading associated with facility construction.

Summary of Combined Impacts for Alternative 1

The preceding analyses have identified impacts associated with individual components of Alternative 1 (Solar Farm Layout B, GT-A-1, and Red Bluff Substation A). The following discussion provides a summary of climate change impacts reflecting the combined effects of all components of Alternative 1.

Greenhouse Gas Emissions from Construction Activities. Overall construction activity for Alternative 1 would include on-site construction activities and construction-related vehicle traffic for Solar Farm Layout B, GT-A-1, and Red Bluff Substation A. Annual greenhouse gas emissions associated with overall construction activity for Alternative 1 are summarized in Table 4.5-16.

Table 4.5-16
Summary of Greenhouse Gas Emissions from Combined Facility Construction, Alternative 1

Facility Component	CO2*	CH4*	N2O*	GWP, CO2e*
2011 Emissions				
Solar Farm B	10,251	0.53	0.457	**10,401**
Transmission Line A-1	1,608	0.15	0.142	**1,654**
Red Bluff Substation A	657	0.05	0.052	**673**
2011 Total	**12,516**	**0.734**	**0.651**	**12,728**
2012 Emissions				
Solar Farm B	12,852	0.64	0.545	**13,030**
Transmission Line A-1	15	0.00	0.001	**15**
Red Bluff Substation A	1,690	0.12	0.110	**1,726**
2012 Total	**14,557**	**0.756**	**0.656**	**14,771**
2013 Emissions				
Solar Farm B	167	0.01	0.009	**170**
Red Bluff Substation A	699	0.04	0.034	**710**
2013 Total	**866**	**0.049**	**0.043**	**880**

* Annual Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Emissions in this table include both on-site construction activities and construction-related traffic emissions.
Source: Tetra Tech analyses

Greenhouse Gas Emissions from Facility Operations. Greenhouse gas emissions from overall facility operations under Alternative 1 would include operational vehicle traffic for Solar Farm B, GT-A-1, and Red Bluff Substation A plus leaks of sulfur hexafluoride from circuit breakers and switchgear equipment at Solar Farm B and Red Bluff Substation A. Annual greenhouse gas emissions associated with overall operational activity for Alternative 1 are summarized in Table 4.5-17. In addition, Table 4.5-17 shows combined construction and operational greenhouse gas emissions for the Project with construction emissions annualized over a 30-year period. This method was used so that the overall greenhouse gas emissions can be compared with the SCAQMD industrial source greenhouse gas significance threshold of 11,023 tons per year CO2e.

Greenhouse Gas Emissions Avoided by Displacing Fossil Fuel Power Generation. The electrical power produced by the solar farm under Alternative 1 (1.2 billion kilowatt-hours per year) would be sold to SCE and PG&E. Both SCE and PG&E have signed power purchase agreements with Sunlight, indicating that these utilities see a need for this power. Regardless of whether the power provided by Desert Sunlight is used to meet existing power demands or to meet future growth in power demands, solar power generated by the Desert Sunlight Project would effectively displace power generation that otherwise would have to come from other sources. Both SCE and PG&E currently use a mix of fossil fuel, nuclear, hydroelectric,

Table 4.5-17
Summary of Greenhouse Gas Emissions from Combined Facility Operations, Alternative 1

Facility Component	CO2*	CH4*	N2O*	SF6*	GWP, CO2e*
Solar Farm B	536.2	0.0431	0.0416	0.0071	**710.4**
Transmission Line A-1	0.4	0.0000	0.0000	0.0000	**0.5**
Red Bluff Substation A	0.4	0.0000	0.0000	0.0225	**513.5**
Operational Total	**537.1**	**0.0432**	**0.0416**	**0.0296**	**1,224.3**
Annualized Construction Total	931.3	0.0513	0.0450	0.0000	946.0
Combined Construction and Operation	**1,468.3**	**0.0945**	**0.0866**	**0.0296**	**2,170.3**

* Annual Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
SF6 = sulfur hexafluoride, GWP multiplier = 22,800
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Total construction-related emissions (on-site plus construction-related traffic) averaged over a 30-year operational period.
Source: Tetra Tech analyses

geothermal, wind, solar, and biomass power generation sources. The avoided greenhouse gas emissions based on existing (2009) power mixes were previously summarized in Table 4.5-14. Total avoided greenhouse gas emissions would be 155,089 tons per year carbon dioxide equivalent. These avoided greenhouse gas emissions greatly exceed the greenhouse gas emissions generated by construction, operation, and decommissioning of the various Project facilities under Alternative 1.

Changes in Greenhouse Gas Storage Potential of Desert Soils. As discussed above for Solar Farm B, desert ecosystems do not have a large capacity to store greenhouse gases. Consequently, combined facility operations for Alternative 1 would have little impact on potential ecosystem carbon storage.

Applicant Measures and Mitigation Measures

Applicant Measures. Sunlight has designed the Project to incorporate various measures that would reduce on-site construction-related emissions and emissions from construction-related traffic. The emission analyses included in this EIS account for the Applicant measures because they are considered part of the project. Three of the five Applicant measures Sunlight adopted would help reduce greenhouse gas emissions in addition to reducing criteria pollutant emissions. The Applicant measures that would help reduce direct greenhouse gas emissions include the following:

- AM-AIR3: Cut and fill quantities would be balanced across the Solar Farm site to minimize emissions from grading and to avoid the need to import fill materials or to remove excess spoil.
- AM-AIR-4: Sunlight would use power screeners to obtain any required sand and gravel on site, rather than delivering construction sand and gravel to the Solar Farm site by truck. Although this decision would increase the amount of on-site equipment emissions generated during construction, it would eliminate up to 3,500 truck loads of sand and gravel that would otherwise be brought to the site.

- AM-AIR-5: Sunlight would arrange a shuttle bus program for construction workers, with assembly points in the Palm Springs and Blythe areas. Sunlight expects this shuttle bus system to be heavily used by construction workers, with an average of 89.5 percent of construction workers accessing the Solar Farm site by shuttle bus.

Mitigation Measures. Section 4.2 identified three mitigation measures that, if implemented, would provide additional reductions in criteria pollutant emissions. Two of those three mitigation measures would also be expected to provide some reductions in construction-related greenhouse gas emissions. The mitigation measures that would help reduce direct greenhouse gas emissions include the following:

- MM-AIR-1: Sunlight and SCE should give preference to construction contractors who have newer equipment with lower emission rates or who have retrofitted their equipment with supplemental emission control devices (diesel particulate filters and catalytic controls for nitrogen oxide emissions). This measure might have economic consequences in terms of construction costs.
- MM-AIR-2: Sunlight should temporarily stockpile chipped or shredded vegetation debris from the Solar Farm site, then spread it on open areas of the site once construction has been completed on a subarea. This measure would eliminate a modest number of truck trips that would otherwise required to remove vegetation debris from the site.

CEQA Significance Determination

Solar Farm Layout B

Criterion CC-1. Solar Farm Layout B would further the objectives of the CARB AB32 scoping plan, and thus would have a net beneficial impact under Criterion CC-1.

Criterion CC-2. As summarized previously in Table 4.5-17, Alternative 1 would generate an annualized average of 2,170 tons per year of greenhouse gas emissions (in CO_2e). These direct greenhouse gas emissions are well below the SCAQMD interim greenhouse gas emissions significance level of 11,023 tons per year CO_2e. In addition, the electrical power produced by the solar farm under Alternative 1 (1.2 billion kilowatt-hours per year) would be sold to SCE and PG&E, and would effectively displace power generation from other sources. Both SCE and PG&E currently use a mix of fossil fuel, nuclear, hydroelectric, geothermal, wind, solar, and biomass power generation sources. The avoided greenhouse gas emissions associated with displaced power generation (155,089 tons per year CO_2e) would greatly exceed the limited direct greenhouse gas emissions associated with construction, operation, and decommissioning of the solar farm. Consequently, SF-B would have a net beneficial impact under Criterion CC-2.

Gen-Tie Line A-1

Criterion CC-1. Gen Tie Line A-1 would be an essential component of Alternative 1, and as such would further the objectives of the CARB AB32 scoping plan. Consequently, Gen Tie Line A-1 would have a net beneficial impact under Criterion CC-1.

Criterion CC-2. Gen Tie Line A-1 would be an essential component of Alternative 1, which would produce 1.2 billion kilowatt-hours of electricity per year. That electrical power would be sold to SCE and PG&E, and would effectively displace power generation from other sources. The avoided greenhouse gas emissions associated with displaced power generation would greatly exceed the limited direct greenhouse gas emissions associated with construction, operation, and decommissioning of the Project. Consequently, Gen Tie Line A-1 would have a net beneficial impact under Criterion CC-2.

Red Bluff Substation A

Criterion CC-1 Red Bluff Substation A would be an essential component of Alternative 1, and as such would further the objectives of the CARB AB32 scoping plan. Consequently, Red Bluff Substation A would have a net beneficial impact under Criterion CC-1.

Criterion CC-2. Red Bluff Substation A would be an essential component of Alternative 1, which would produce 1.2 billion kilowatt-hours of electricity per year. That electrical power would be sold to SCE and PG&E, and would effectively displace power generation from other sources. The avoided greenhouse gas emissions associated with displaced power generation would greatly exceed the limited direct greenhouse gas emissions associated with construction, operation, and decommissioning of the Project. Consequently, Red Bluff Substation A would have a beneficial impact under Criterion CC-2.

Unavoidable Adverse Effects

No unavoidable adverse climate change impacts have been identified under Alternative 1.

4.5.4 Alternative 2 - Alternate Action

Construction

Solar Farm Layout B

Greenhouse gas emissions generated by construction activity for Solar Farm Layout B under Alternative 2 would be identical to those previously presented for Solar Farm Layout B under Alternative 1 (see Tables 4.5-2 through 4.5-5).

Gen-Tie Line B-2

Greenhouse Gas Emissions from Construction Activities. Greenhouse gas emissions from on-site construction activity for Gen Tie Line B-2 were estimated using the construction emissions spreadsheet model discussed previously. Tables 4.5-18 and 4.5-19 summarize annual greenhouse gas emissions from construction activity for 2011 and 2012, respectively.

Table 4.5-18
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2011, Gen-Tie Line B-2

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Site Preparation	30.5	0.001	0.001	**30.8**
Tower Foundations	65.2	0.003	0.002	**65.8**
Tower Assembly and Erection	72.3	0.002	0.002	**72.8**
Power Line Stringing	119.0	0.008	0.006	**120.9**
Testing	8.8	0.001	0.001	**9.0**
2011 Totals	**295.8**	**0.014**	**0.011**	**299.4**

* Annual Emissions for 2011, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Table 4.5-19
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2012, Gen-Tie Line B-2

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Site Cleanup	2.1	0.000	0.000	**2.1**
2012 Totals	**2.1**	**0.000**	**0.000**	**2.1**

* Annual Emissions for 2012, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Greenhouse Gas Emissions from Construction-Related Traffic. Vehicle trips associated with construction of GT-B-2 were presented previously in Table 4.2-40. Greenhouse gas emissions from construction-related traffic for Gen Tie Line B-2 have been evaluated using a combination of the URBEMIS2007 model and supplemental spreadsheet analyses.

Table 4.5-20 summarizes annual greenhouse gas emissions from construction-related traffic for GT-B-2.

Table 4.5-20
Summary of Greenhouse Gas Emissions from Construction-Related Traffic, Gen-Tie Line B-2

Traffic Component	CO2*	CH4*	N2O*	GWP, CO2e*
2011 Emissions				
Construction Trucks	166	0.006	0.005	**168**
Personal Vehicle Commute	1,124	0.126	0.126	**1,164**
2011 Total	**1,290**	**0.132**	**0.131**	**1,332**
2012 Emissions				
Construction Trucks	0	0.000	0.000	**1**
Personal Vehicle Commute	12	0.001	0.001	**12**
2012 Total	**13**	**0.001**	**0.001**	**13**

* Annual Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Red Bluff Substation B

Greenhouse Gas Emissions from On-Site Construction Activities. Greenhouse gas emissions from on-site construction activity were estimated using the construction emissions spreadsheet model discussed previously. Tables 4.5-21 through 4.5-23 summarize annual greenhouse gas emissions from substation construction activity for 2011, 2012, and 2013, respectively.

Table 4.5-21
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2011, Red Bluff Substation B

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Access Road Construction	13.4	0.000	0.000	**13.5**
Site Fencing	9.1	0.001	0.000	**9.3**
Site Clearing	54.2	0.002	0.001	**54.6**
Grading and Compacting	128.2	0.004	0.003	**129.3**
2011 Totals	**205.0**	**0.007**	**0.005**	**206.7**

* Annual Emissions for 2011, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Table 4.5-22
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2012, Red Bluff Substation B

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Trenching and Foundations	24.4	0.001	0.001	**24.6**
Equipment Pads	88.7	0.007	0.005	**90.4**
Equipment Installation	122.5	0.008	0.006	**124.5**
Power Line Connections	45.4	0.002	0.002	**46.2**
Testing	7.0	0.001	0.001	**7.2**
2012 Totals	**288.0**	**0.019**	**0.015**	**292.8**

* Annual Emissions for 2012, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Table 4.5-23
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2013, Red Bluff Substation B

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Testing	6.9	0.001	0.001	**7.1**
Driveways, Other Paving, Security Wall	43.6	0.002	0.002	**44.2**
Site Cleanup	1.8	0.000	0.000	**1.8**
2013 Totals	**52.3**	**0.003**	**0.002**	**53.1**

* Annual Emissions for 2013, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Greenhouse Gas Emissions from Construction-Related Traffic. Vehicle trips associated with construction Red Bluff Substation B were presented previously in Table 4.2-49. Greenhouse gas emissions from construction-related traffic have been evaluated using a combination of the URBEMIS2007 model and supplemental spreadsheet analyses.

Table 4.5-24 summarizes annual greenhouse gas emissions from construction-related traffic for Red Bluff Substation B.

Table 4.5-24
Summary of Greenhouse Gas Emissions from Construction-Related Traffic, Red Bluff Substation B

Traffic Component	CO2*	CH4*	N2O*	GWP, CO2e*
	2011 Emissions			
Construction Trucks	11	0.000	0.000	**11**
Personal Vehicle Commute	354	0.040	0.040	**367**
2011 Total	**364**	**0.040**	**0.040**	**377**

Table 4.5-24 (continued)
Summary of Greenhouse Gas Emissions from Construction-Related Traffic, Red Bluff Substation B

Traffic Component	CO2*	CH4*	N2O*	GWP, CO2e*
2012 Emissions				
Construction Trucks	756	0.027	0.023	**764**
Personal Vehicle Commute	646	0.072	0.072	**669**
2012 Total	**1,402**	**0.100**	**0.095**	**1,433**
2013 Emissions				
Construction Trucks	208	0.008	0.006	**210**
Personal Vehicle Commute	139	0.016	0.016	**144**
2013 Total	**347**	**0.023**	**0.022**	**354**

* Annual Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Summary of Construction Impacts

Construction activities and associated vehicle traffic under Alternative 2 would generate emissions of greenhouse gas pollutants over a period of approximately 26 months. The Applicant proposes to implement a construction worker shuttle bus system that would greatly reduce the volume of traffic and resulting greenhouse gas emissions that would otherwise be generated by construction worker commute traffic for the solar farm.

Operation and Maintenance

Solar Farm Layout B

Greenhouse gas emissions from operation of SF-B under Alternative 2 would be identical to those previously presented for Solar Farm Layout B under Alternative 1 (see Tables 4.5-13 and 4.5-14).

Gen-Tie Line B-2

Greenhouse Gas Emissions from Facility Operations. There are few sources of greenhouse gas emissions associated with transmission line operation. Vehicles used for periodic line inspection and necessary maintenance activities would be an intermittent and very small source of greenhouse gas emissions. Assuming two line inspections and one maintenance event per year, operational greenhouse gas emissions would be about 744 pounds (0.46 tons) per year carbon dioxide equivalent. The ozone that can be generated by corona discharge effects along high voltage transmission lines is also a greenhouse gas, but ozone in the lower atmosphere is so chemically reactive that it has a very short atmospheric lifetime and thus has little impact on climate change.

Changes in Greenhouse Gas Storage Potential of Desert Soils. As discussed above for Solar Farm B under Alternative 1, desert ecosystems do not have a large capacity to store greenhouse gases. Consequently, operation of Gen Tie Line B-2 would have little impact on potential ecosystem carbon storage.

Red Bluff Substation B

Greenhouse Gas Emissions from Facility Operations. Operational greenhouse gas emissions for Red Bluff Substation B under Alternative 2 would be the same as those previously presented for Red Bluff Substation A under Alternative 1 (see Table 4.5-15).

Changes in Greenhouse Gas Storage Potential of Desert Soils. As discussed previously for Solar Farm B under Alternative 1, desert ecosystems do not have a large capacity to store greenhouse gases. Consequently, operation of Red Bluff Substation B under Alternative 2 would have little impact on potential ecosystem carbon storage.

Summary of Operation and Maintenance Impacts

Operation and maintenance activities for the solar farm, Gen Tie Line, and Red Bluff Substation under Alternative 2 would be small sources of on-going greenhouse gas emissions. Only the solar farm facility would have on-site employees. The Gen Tie Line and Red Bluff Substation would require only infrequent inspection and maintenance activities. Electrical equipment at the solar farm site and at the Red Bluff Substation would be a source of sulfur hexafluoride leaks. The annual greenhouse gas emissions generated by operation and maintenance activities at Project facilities would be more than off-set by the avoided greenhouse gas emissions that result from solar-based electrical power generation that effectively displaces other sources of power generation. Project facilities would have little impact on potential ecosystem carbon storage.

Decommissioning

Solar Farm Layout B

The impacts resulting from decommissioning SF-B under Alternative 2 would be identical to those previously discussed for SF-B under Alternative 1.

Gen-Tie Line B-2

The impacts resulting from decommissioning GT-B-2 under Alternative 2 would be essentially the same as those previously discussed for GT-A-1 under Alternative 1.

Red Bluff Substation B

The impacts resulting from decommissioning RB-B under Alternative 2 would be essentially the same as those previously discussed for RB-A under Alternative 1.

Summary of Decommissioning Impacts

Greenhouse gas emissions from facility decommissioning would be generally similar in nature to those of facility construction, but emission quantities would likely be less than those generated by construction activities. Equipment engine greenhouse gas emissions might be considerably less than those from construction activity due to future changes in engine and fuel technology. Decommissioning activities would not require the extent of vegetation clearing and site grading associated with facility construction.

Summary of Combined Impacts for Alternative 2

The preceding analyses have identified impacts associated with individual components of Alternative 2 (Solar Farm Layout B, GT-B-2, and Red Bluff Substation B). The following discussion provides a summary of air quality impacts reflecting the combined effects of all components of Alternative 2.

Greenhouse Gas Emissions from Construction Activities. Overall construction activity for Alternative 2 would include on-site construction activities and construction-related vehicle traffic for Solar Farm Layout B, GT-B-2, and Red Bluff Substation B. Annual greenhouse gas emissions associated with overall construction activity for Alternative 2 are summarized in Table 4.5-25.

Table 4.5-25
Summary of Greenhouse Gas Emissions from Combined Facility Construction, Alternative 2

Facility Component	CO2*	CH4*	N2O*	GWP, CO2e*
		2011 Emissions		
Solar Farm B	10,251	0.53	0.457	**10,401**
Transmission Line B-2	1,586	0.15	0.141	**1,632**
Red Bluff Substation B	569	0.05	0.045	**584**
2011 Total	**12,406**	**0.726**	**0.644**	**12,616**
		2012 Emissions		
Solar Farm B	12,852	0.64	0.545	**13,030**
Transmission Line B-2	15	0.00	0.001	**15**
Red Bluff Substation B	1,690	0.12	0.110	**1,726**
2012 Total	**14,557**	**0.756**	**0.656**	**14,771**
		2013 Emissions		
Solar Farm B	167	0.01	0.009	**170**
Red Bluff Substation B	399	0.03	0.024	**407**
2013 Total	**566**	**0.037**	**0.033**	**577**

* Annual Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Emissions in this table include both on-site construction activities and construction-related traffic emissions.
Source: Tetra Tech analyses

Greenhouse Gas Emissions from Facility Operations. Greenhouse gas emissions from overall facility operations under Alternative 2 would include operational vehicle traffic for Solar Farm B, GT-B-2, and Red Bluff Substation B plus leaks of sulfur hexafluoride from circuit breakers and switchgear equipment at Solar Farm B and Red Bluff Substation B. Annual greenhouse gas emissions associated with overall operational activity for Alternative 2 are summarized Table 4.5-26. In addition, Table 4.5-26 shows combined construction and operational greenhouse gas emissions for the Project with construction emissions annualized over a 30-year period. This method was used so that the overall greenhouse gas emissions can be compared with the SCAQMD industrial source greenhouse gas significance threshold of 11,023 tons per year CO2e.

Greenhouse Gas Emissions Avoided by Displacing Fossil Fuel Power Generation. The electrical power produced by the solar farm under Alternative 2 (1.2 billion kilowatt-hours per year) would be sold to SCE and PG&E. Both SCE and PG&E have signed power purchase agreements with Sunlight, indicating that these utilities see a need for this power. Regardless of whether the power provided by Desert Sunlight is used to meet existing power demands or to meet future growth in power demands, solar power generated by the Desert Sunlight Project would effectively displace power generation that otherwise would have to come from other sources. Both SCE and PG&E currently use a mix of fossil fuel, nuclear, hydroelectric, geothermal, wind, solar, and biomass power generation sources. The avoided greenhouse gas emissions based on existing (2009) power mixes were previously summarized in Table 4.5-14. Total avoided greenhouse gas emissions would be 155,089 tons per year carbon dioxide equivalent. These avoided greenhouse gas emissions greatly exceed the greenhouse gas emissions generated by construction, operation, and decommissioning of the various Project facilities under Alternative 2.

Table 4.5-26
Summary of Greenhouse Gas Emissions from Combined Facility Operations, Alternative 2

Facility Component	CO2*	CH4*	N2O*	SF6*	GWP, CO2e*
Solar Farm B	536.2	0.0431	0.0416	0.0071	**710.4**
Transmission Line B-2	0.4	0.0000	0.0000	0.0000	**0.5**
Red Bluff Substation B	0.4	0.0000	0.0000	0.0225	**513.5**
Operational Total	**537.1**	**0.0432**	**0.0416**	**0.0296**	**1,224.3**
Annualized Construction Total	917.7	0.0506	0.0444	0.0000	932.2
Combined Construction and Operation	**1,454.7**	**0.0938**	**0.0860**	**0.0296**	**2,156.5**

* Annual Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
SF6 = sulfur hexafluoride, GWP multiplier = 22,800
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Total construction-related emissions (on-site plus construction-related traffic) averaged over a 30-year operational period.
Source: Tetra Tech analyses

Changes in Greenhouse Gas Storage Potential of Desert Soils. As discussed previously for Solar Farm B under Alternative 1, desert ecosystems do not have a large capacity to store greenhouse gases. Consequently, operation of combine facilities under Alternative 2 would have little impact on potential ecosystem carbon storage.

Applicant Measures and Mitigation Measures

The Applicant measures and mitigation measures for greenhouse gas emissions previously identified for Alternative 1 apply equally to Alternative 2.

CEQA Significance Determination

Solar Farm Layout B

Criterion CC-1. Solar Farm Layout B would further the objectives of the CARB AB32 scoping plan, and thus would have a net beneficial impact under Criterion CC-1.

Criterion CC-2. As summarized previously in Table 4.5-26, Alternative 2 would generate an annualized average of 2,157 tons per year of greenhouse gas emissions (in CO2e). These direct greenhouse gas emissions are well below the SCAQMD interim greenhouse gas emissions significance level of 11,023 tons per year CO_2e. In addition, the electrical power produced by the solar farm under Alternative 2 (1.2 billion kilowatt-hours per year) would be sold to SCE and PG&E, and would effectively displace power generation from other sources. Both SCE and PG&E currently use a mix of fossil fuel, nuclear, hydroelectric, geothermal, wind, solar, and biomass power generation sources. The avoided greenhouse gas emissions associated with displaced power generation (155,089 tons per year CO_2e) would greatly exceed the limited direct greenhouse gas emissions associated with construction, operation, and decommissioning of the solar farm. Consequently, SF-B would have a net beneficial impact under Criterion CC-2.

Gen-Tie Line B-2

Criterion CC-1. Gen Tie Line B-2 would be an essential component of Alternative 2, and as such would further the objectives of the CARB AB32 scoping plan. Consequently, Gen Tie Line B-2 would have a net beneficial impact under Criterion CC-1.

Criterion CC-2. Gen Tie Line B-2 would be an essential component of Alternative 2, which would produce 1.2 billion kilowatt-hours of electricity per year. That electrical power would be sold to SCE and PG&E, and would effectively displace power generation from other sources. The avoided greenhouse gas emissions associated with displaced power generation would greatly exceed the limited direct greenhouse gas emissions associated with construction, operation, and decommissioning of the Project. Consequently, Gen Tie Line B-2 would have a net beneficial impact under Criterion CC-2.

Red Bluff Substation B

Criterion CC-1 Red Bluff Substation B would be an essential component of Alternative 2, and as such would further the objectives of the CARB AB32 scoping plan. Consequently, Red Bluff Substation B would have a net beneficial impact under Criterion CC-1.

Criterion CC-2. Red Bluff Substation B would be an essential component of Alternative 2, which would produce 1.2 billion kilowatt-hours of electricity per year. That electrical power would be sold to SCE and PG&E, and would effectively displace power generation from other sources. The avoided greenhouse gas emissions associated with displaced power generation would greatly exceed the limited direct greenhouse gas emissions associated with construction, operation, and decommissioning of the Project. Consequently, Red Bluff Substation B would have a beneficial impact under Criterion CC-2.

Unavoidable Adverse Effects

No unavoidable adverse climate change impacts have been identified under Alternative 2.

4.5.5 Alternative 3 – Reduced Footprint Alternative

Construction

Solar Farm Layout C

Greenhouse Gas Emissions from On-Site Construction Activities. Greenhouse gas emissions from on-site construction activity were estimated using the construction emissions spreadsheet model discussed previously. Tables 4.5-27 through 4.5-29 summarize annual greenhouse gas emissions from construction activity for 2011, 2012, and 2013, respectively.

Table 4.5-27
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2011, Solar Farm Layout C

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Tortoise Exclusion Fencing	34.9	0.001	0.001	**35.2**
Access Roads and Staging Areas	333.8	0.015	0.011	**337.3**
Construction Offices and Water/Sanitation Facilities	74.2	0.002	0.001	**74.6**
Security Fencing and Debris Basins	71.5	0.003	0.002	**72.2**
Site Clearing	296.2	0.010	0.007	**298.5**
Site Grading	1,398.9	0.052	0.037	**1,411.3**
Array Support Posts	336.2	0.009	0.007	**338.3**
Trenching and Underground Cables	234.5	0.008	0.006	**236.4**
Soil Compacting and Dust Palliative	627.6	0.014	0.010	**630.9**
On-Site Power Poles	20.2	0.000	0.000	**20.3**
Switchgear Facilities	96.9	0.003	0.002	**97.5**
On-Site Substation	77.1	0.003	0.003	**78.0**
Solar Array Assemblies	520.1	0.021	0.016	**525.3**
On-Site Overhead Power Lines	92.4	0.003	0.002	**93.0**
2011 Totals	**4,214.2**	**0.14**	**0.10**	**4,248.6**

* Annual Emissions for 2011, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Table 4.5-28
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2012, Solar Farm Layout C

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Access Roads and Staging Areas	101.0	0.005	0.003	**102.1**
Site Clearing	330.0	0.011	0.008	**332.5**
Site Grading	1,512.2	0.056	0.040	**1,525.6**
Array Support Posts	460.7	0.012	0.009	**463.6**
Trenching and Underground Cables	308.4	0.010	0.007	**310.8**
Soil Compacting and Dust Palliative	985.9	0.022	0.016	**991.1**
On-Site Power Poles	28.7	0.001	0.001	**28.8**
Switchgear Facilities	152.4	0.004	0.003	**153.4**
Solar Array Assemblies	790.7	0.032	0.024	**798.5**
On-Site Overhead Power Lines	145.0	0.004	0.003	**146.0**
Permanent Buildings	33.8	0.001	0.001	**34.1**
Functional Testing	128.3	0.002	0.002	**128.9**
2012 Totals	**4,977.1**	**0.16**	**0.12**	**5,015.5**

* Annual Emissions for 2012, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Table 4.5-29
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2013, Solar Farm Layout C

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Functional Testing	12.0	0.000	0.000	**12.0**
De-Compaction and Dust Palliative	60.8	0.002	0.002	**61.3**
Site Cleanup	14.3	0.001	0.000	**14.4**
2013 Totals	**87.0**	**0.00**	**0.00**	**87.7**

* Annual Emissions for 2013, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Greenhouse Gas Emissions from Construction-Related Traffic. Vehicle trips associated with construction Solar Farm Layout C were presented previously in Table 4.2-62. Greenhouse gas emissions from construction-related traffic have been evaluated using a combination of the URBEMIS2007 model and supplemental spreadsheet analyses.

Table 4.5-30 summarizes annual greenhouse gas emissions from construction-related traffic for Solar Farm Layout C.

Table 4.5-30
Summary of Greenhouse Gas Emissions from Construction-Related Traffic, Solar Farm Layout C

Traffic Component	CO2*	CH4*	N2O*	GWP, CO2e*
2011 Emissions				
Construction Trucks	2,124	0.077	0.064	**2,145**
Shuttle Buses	466	0.055	0.046	**481**
Personal Vehicle Commute	610	0.068	0.068	**632**
To/From Shuttle Assembly Areas	1,008	0.113	0.113	**1,044**
2011 Total	**4,208**	**0.312**	**0.290**	**4,302**
2012 Emissions				
Construction Trucks	3,057	0.110	0.092	**3,087**
Shuttle Buses	492	0.058	0.048	**508**
Personal Vehicle Commute	688	0.077	0.077	**713**
To/From Shuttle Assembly Areas	1,109	0.124	0.124	**1,149**
2012 Total	**5,346**	**0.369**	**0.341**	**5,457**

Table 4.5-30 (continued)
Summary of Greenhouse Gas Emissions from Construction-Related Traffic, Solar Farm Layout C

Traffic Component	CO2*	CH4*	N2O*	GWP, CO2e*
2013 Emissions				
Construction Trucks	6	0.000	0.000	**6**
Shuttle Buses	11	0.001	0.001	**12**
Personal Vehicle Commute	17	0.002	0.002	**17**
To/From Shuttle Assembly Areas	24	0.003	0.003	**25**
2013 Total	**58**	**0.006**	**0.006**	**60**

* Annual Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Gen-Tie Line A-2

Greenhouse Gas Emissions from On-Site Construction Activities. Greenhouse gas emissions from on-site construction activity were estimated using the construction emissions spreadsheet model discussed previously. Tables 4.5-31 and 4.5-32 summarize annual greenhouse gas emissions from construction activity for 2011 and 2012, respectively.

Table 4.5-31
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2011, Gen-Tie Line A-2

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Site Preparation	30.5	0.001	0.001	**30.8**
Tower Foundations	65.0	0.003	0.002	**65.6**
Tower Assembly and Erection	72.3	0.002	0.002	**72.8**
Power Line Stringing	119.0	0.008	0.006	**120.9**
Testing	8.8	0.001	0.001	**9.0**
2011 Totals	**295.6**	**0.01**	**0.01**	**299.1**

* Annual Emissions for 2011, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Table 4.5-32
Summary of Greenhouse Gas Emissions from On-Site Construction Activity for 2012, Gen-Tie Line A-2

Construction Phase	CO2*	CH4*	N2O*	GWP, CO2e*
Site Cleanup	2.1	0.000	0.000	**2.1**
2012 Totals	**2.1**	**0.000**	**0.000**	**2.1**

* Annual Emissions for 2012, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Greenhouse Gas Emissions from Construction-Related Traffic. Vehicle trips associated with construction of GT-A-2 were presented previously in Table 4.2-69. Greenhouse gas emissions from construction-related traffic have been evaluated using a combination of the URBEMIS2007 model and supplemental spreadsheet analyses.

Table 4.5-33 summarizes annual greenhouse gas emissions from construction-related traffic for Transmission Line A-2.

Table 4.5-33
Summary of Greenhouse Gas Emissions from Construction-Related Traffic, Gen-Tie Line A-2

Traffic Component	CO2*	CH4*	N2O*	GWP, CO2e*
2011 Emissions				
Construction Trucks	153	0.006	0.005	**155**
Personal Vehicle Commute	1,124	0.126	0.126	**1,164**
2011 Total	**1,277**	**0.131**	**0.130**	**1,319**
2012 Emissions				
Construction Trucks	0	0.000	0.000	**1**
Personal Vehicle Commute	12	0.001	0.001	**12**
2012 Total	**13**	**0.001**	**0.001**	**13**

* Annual Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Red Bluff Substation A

Greenhouse Gas Emissions from On-Site Construction Activities. Greenhouse gas emissions from on-site construction activity for Red Bluff Substation A under Alternative 3 would be identical to those previously described for Red Bluff Substation A under Alternative 1 (see Tables 4.5-9 through 4.5-11).

Greenhouse Gas Emissions from Construction-Related Traffic. Greenhouse gas emissions from construction-related vehicle traffic for Red Bluff Substation A under Alternative 3 would be identical to those previously described for Red Bluff Substation A under Alternative 1 (see Table 4.5-12).

Summary of Construction Impacts

Construction activities and associated vehicle traffic under Alternative 3 would generate emissions of greenhouse gas pollutants over a period of approximately 26 months. The Applicant proposes to implement a construction worker shuttle bus system that would greatly reduce the volume of traffic and resulting greenhouse gas emissions that would otherwise be generated by construction worker commute traffic for the solar farm.

Operation and Maintenance

Solar Farm Layout C

Greenhouse Gas Emissions from Facility Operations. Solar farm operations under Alternative 3 would have limited sources of greenhouse gas emissions. The primary sources of operational greenhouse gas emissions would be operational vehicle traffic and leaks of sulfur hexafluoride from circuit breakers and other equipment at the on-site substation and PVCS units. First Solar has estimated the leak rate for the on-site substation and PVCS facilities at 14.1 pounds per year (Lamb 2010) for the 550 MW generation alternatives. Assuming that sulfur hexafluoride use is proportional to power generation, the leak rate for Solar Farm Layout C under Alternative 3 would be 10.6 pounds (0.005 tons) per year.

Table 4.5-34 summarizes annual greenhouse gas emissions from operation of Solar Farm Layout C. These greenhouse gas emissions would be more than off-set by the greenhouse gas emissions that would be avoided by using solar power generation instead of generating power from fossil fuel sources (as discussed below).

Table 4.5-34
Greenhouse Gas Emissions from Solar Farm Operations, Alternative 3

Emissions Component	CO2*	CH4*	N2O*	SF6*	GWP, CO2e*
Worker Commute Traffic	302.6	0.034	0.034	0	**313.5**
Truck Traffic	233.6	0.009	0.008	0	**236.1**
PVCS Units and On-Site Substation	0	0	0	0.005	**120.7**
Total	**536.2**	**0.043**	**0.042**	**0.005**	**670.3**

* Annual Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
SF6 = sulfur hexafluoride, GWP multiplier = 22,800
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Greenhouse Gas Emissions Avoided by Displacing Fossil Fuel Power Generation. The electrical power produced by the solar farm under Alternative 3 (901 million kilowatt-hours per year) would be sold to SCE and PG&E, and would effectively displace power generation from other sources. Both SCE and PG&E currently use a mix of fossil fuel, nuclear, hydroelectric, geothermal, wind, solar, and biomass power generation sources. Greenhouse gas emissions avoided by the use of solar power have been estimated using the complete 2009 power mixes for these two utilities. Table 4.5-35 summarizes the results of this analysis. Additional details concerning the analysis of avoided greenhouse gas emissions are provided in Appendix D-5.

Table 4.5-35
Avoided Greenhouse Gas Emissions For SCE and PG&E, Alternative 1

Utility	Annual Power Received From Solar Farm B, kW-Hrs per Year	CO2*	CH4*	N2O*	GWP, CO2e*
SCE	409,586,777	60,130.8	3.172	0.433	**60,339.1**
PG&E	491,504,132	57,050.2	3.370	0.438	**57,265.0**
Total	**901,090,909**	**117,181.0**	**6.542**	**0.871**	**117,604.1**

* Avoided Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Avoided emissions based on 2009 power mix data for SCE and PG&E.
Source: Tetra Tech analyses

Changes in Greenhouse Gas Storage Potential of Desert Soils. As discussed previously for Solar Farm B under Alternative 1, desert ecosystems do not have a large capacity to store greenhouse gases. Consequently, operation of Solar Farm Layout C under Alternative 3 would have little impact on potential ecosystem carbon storage.

Gen-Tie Line A-2

Greenhouse Gas Emissions from Facility Operations. There are few sources of greenhouse gas emissions associated with transmission line operation. Vehicles used for periodic line inspection and necessary maintenance activities would be an intermittent and very small source of greenhouse gas emissions. Assuming two line inspections and one maintenance event per year, operational greenhouse gas emissions would be about 744 pounds (0.46 tons) per year carbon dioxide equivalent. The ozone that can be generated by corona discharge effects along high voltage transmission lines is also a greenhouse gas, but ozone in the lower atmosphere is so chemically reactive that it has a very short atmospheric lifetime and thus has little impact on climate change.

Changes in Greenhouse Gas Storage Potential of Desert Soils. As discussed previously for Solar Farm B under Alternative 1, desert ecosystems do not have a large capacity to store greenhouse gases. Consequently, operation of Gen Tie Line A-2 under Alternative 3 would have little impact on potential ecosystem carbon storage.

Red Bluff Substation A

The impacts resulting from operating and maintaining Red Bluff Substation A under Alternative 3 would be identical to those previously presented for Red Bluff Substation A under Alternative 1 (see Tables 4.5-9 through 4.5-12).

Summary of Operation and Maintenance Impacts

Operation and maintenance activities for the solar farm, Gen Tie Line, and Red Bluff Substation under Alternative 3 would be small sources of on-going greenhouse gas emissions. Only the solar farm facility would have on-site employees. The Gen Tie Line and Red Bluff Substation would require only infrequent inspection and maintenance activities. Electrical equipment at the solar farm site and at the Red Bluff Substation would be a source of sulfur hexafluoride leaks. The annual greenhouse gas emissions generated by operation and maintenance activities at Project facilities would be more than off-set by the avoided greenhouse gas emissions that result from solar-based electrical power generation that effectively displaces other sources of power generation. Project facilities would have little impact on potential ecosystem carbon storage.

Decommissioning

Solar Farm Layout C

The impacts resulting from decommissioning SF-C under Alternative 3 would be similar to but somewhat less than those previously discussed for SF-B under Alternative 1.

Gen-Tie Line A-2

The impacts resulting from decommissioning GT-A-2 under Alternative 3 would be similar to those previously discussed for GT-A-1 under Alternative 1.

Red Bluff Substation A

The impacts resulting decommissioning Red Bluff Substation A under Alternative 3 would be identical to those previously discussed for Red Bluff Substation A under Alternative 1.

Summary of Decommissioning Impacts

Greenhouse gas emissions from facility decommissioning would be generally similar in nature to those of facility construction, but emission quantities would likely be less than those generated by construction activities. Equipment engine greenhouse gas emissions might be considerably less than those from construction activity due to future changes in engine and fuel technology. Decommissioning activities would not require the extent of vegetation clearing and site grading associated with facility construction.

Summary of Combined Impacts for Alternative 3

The preceding analyses have identified impacts associated with individual components of Alternative 3 (Solar Farm Layout C, GT-A-2, and Red Bluff Substation A). The following discussion provides a summary of air quality impacts reflecting the combined effects of all components of Alternative 3.

Greenhouse Gas Emissions from Construction Activities. Overall construction activity for Alternative 3 would include on-site construction activities and construction-related vehicle traffic for Solar Farm Layout C, Transmission Line A-2, and Red Bluff Substation A. Annual greenhouse gas emissions associated with overall construction activity for Alternative 3 are summarized in Table 4.5-36.

Greenhouse Gas Emissions from Facility Operations. Greenhouse gas emissions from overall facility operations under Alternative 3 would include operational vehicle traffic for Solar Farm C, GT-A-2, and Red Bluff Substation A plus leaks of sulfur hexafluoride from circuit breakers and switchgear equipment at Solar Farm C and Red Bluff Substation A. Annual greenhouse gas emissions associated with overall operational activity for Alternative 3 are summarized in Table 4.5-37. In addition, Table 4.5-37 shows combined construction and operational greenhouse gas emissions for the Project with construction emissions annualized over a 30-year period. This method was used so that the overall greenhouse gas emissions can be compared with the SCAQMD industrial source greenhouse gas significance threshold of 11,023 tons per year CO2e.

Greenhouse Gas Emissions Avoided by Displacing Fossil Fuel Power Generation. The electrical power produced by the solar farm under Alternative 3 (901 million kilowatt-hours per year) would be sold to SCE and PG&E. Both SCE and PG&E have signed power purchase agreements with Sunlight, indicating that these utilities see a need for this power. Regardless of whether the power provided by Desert Sunlight is used to meet existing power demands or

Table 4.5-36
Summary of Greenhouse Gas Emissions from Combined Facility Construction, Alternative 3

Facility Component	CO2*	CH4*	N2O*	GWP, CO2e*
2011 Emissions				
Solar Farm C	8,422	0.46	0.394	**8,551**
Transmission Line A-2	1,573	0.15	0.141	**1,618**
Red Bluff Substation A	657	0.05	0.052	**673**
2011 Total	**10,651**	**0.655**	**0.587**	**10,842**
2012 Emissions				
Solar Farm C	10,323	0.53	0.456	**10,472**
Transmission Line A-2	15	0.00	0.001	**15**
Red Bluff Substation A	1,690	0.12	0.110	**1,726**
2012 Total	**12,028**	**0.648**	**0.567**	**12,213**
2013 Emissions				
Solar Farm C	145	0.01	0.008	**148**
Red Bluff Substation A	699	0.04	0.034	**710**
2013 Total	**844**	**0.047**	**0.042**	**857**

* Annual Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Source: Tetra Tech analyses

Table 4.5-37
Summary of Greenhouse Gas Emissions from Combined Facility Operations, Alternative 3

Facility Component	CO2*	CH4*	N2O*	SF6*	GWP, CO2e*
Solar Farm C	536.2	0.0431	0.0416	0.005	**670.3**
Transmission Line A-2	0.4	0.0000	0.0000	0.0000	**0.5**
Red Bluff Substation A	0.4	0.0000	0.0000	0.0225	**513.5**
Operational Total	**537.1**	**0.0432**	**0.0416**	**0.0278**	**1,184.3**
Annualized Construction Total	784.1	0.0450	0.0399	0.0000	797.1
Combined Construction and Operation	**1,321.1**	**0.0882**	**0.0815**	**0.0278**	**1,981.3**

* Annual Greenhouse Gas Emissions, Tons per Year
CO2 = carbon dioxide, GWP multiplier = 1
CH4 = methane, GWP multiplier = 25
N2O = nitrous oxide, GWP multiplier = 298
SF6 = sulfur hexafluoride, GWP multiplier = 22,800
CO2e = carbon dioxide equivalents
GWP = global warming potential as CO2e, based on multipliers from IPCC 2007
Total construction-related emissions (on-site plus construction-related traffic) averaged over a 30-year operational period.
Source: Tetra Tech analyses

to meet future growth in power demands, solar power generated by the Desert Sunlight Project would effectively displace power generation that otherwise would have to come from other sources. Both SCE and PG&E currently use a mix of fossil fuel, nuclear, hydroelectric, geothermal, wind, solar, and biomass power generation sources. The avoided greenhouse gas emissions were previously summarized in Table 4.5-35. Total avoided greenhouse gas emissions would be 117,604 tons per year (carbon dioxide equivalent). These avoided greenhouse gas emissions greatly exceed the greenhouse gas emissions generated by construction, operation, and decommissioning of the various Project facilities under Alternative 3.

Changes in Greenhouse Gas Storage Potential of Desert Soils. As discussed previously for Solar Farm B under Alternative 1, desert ecosystems do not have a large capacity to store greenhouse gases. Consequently, operation of combine facilities under Alternative 3 would have little impact on potential ecosystem carbon storage.

Applicant Measures and Mitigation Measures

The Applicant measures and mitigation measures for greenhouse gas emissions previously identified for Alternative 1 apply equally to Alternative 3.

CEQA Significance Determination

Solar Farm Layout C

Criterion CC-1. Solar Farm Layout C would further the objectives of the CARB AB32 scoping plan, and thus would have a net beneficial impact under Criterion CC-1.

Criterion CC-2. As summarized previously in Table 4.5-37, Alternative 3 would generate an annualized average of 1,981 tons per year of greenhouse gas emissions (in CO2e). These direct greenhouse gas emissions are well below the SCAQMD interim greenhouse gas emissions significance level of 11,023 tons per year CO2e. In addition, the electrical power produced by the solar farm under Alternative 3 (901 million kilowatt-hours per year) would be sold to SCE and PG&E, and would effectively displace power generation from other sources. Both SCE and PG&E currently use a mix of fossil fuel, nuclear, hydroelectric, geothermal, wind, solar, and biomass power generation sources. The avoided greenhouse gas emissions associated with displaced power generation (117,604 tons per year CO_2e) would greatly exceed the limited direct greenhouse gas emissions associated with construction, operation, and decommissioning of the solar farm. Consequently, SF-C would have a net beneficial impact under Criterion CC-2.

Gen-Tie Line A-2

Criterion CC-1. Gen Tie Line A-2 would be an essential component of Alternative 3, and as such would further the objectives of the CARB AB32 scoping plan. Consequently, Gen Tie Line A-2 would have a net beneficial impact under Criterion CC-1.

Criterion CC-2. Gen Tie Line A-2 would be an essential component of Alternative 3, which would produce 1.2 billion kilowatt-hours of electricity per year. That electrical power would be sold to SCE and PG&E, and would effectively displace power generation from other sources. The avoided greenhouse gas emissions associated with displaced power generation would greatly exceed the limited direct greenhouse gas emissions associated with construction, operation, and decommissioning of the Project. Consequently, Gen Tie Line A-2 would have a net beneficial impact under Criterion CC-2.

Red Bluff Substation A

Criterion CC-1 Red Bluff Substation A would be an essential component of Alternative 3, and as such would further the objectives of the CARB AB32 scoping plan. Consequently, Red Bluff Substation A would have a net beneficial impact under Criterion CC-1.

Criterion CC-2. Red Bluff Substation A would be an essential component of Alternative 3, which would produce 901 million kilowatt-hours of electricity per year. That electrical power would be sold to SCE and PG&E, and would effectively displace power generation from other sources. The avoided greenhouse gas emissions associated with displaced power generation would greatly exceed the limited direct greenhouse gas emissions associated with construction, operation, and decommissioning of the Project. Consequently, Red Bluff Substation A would have a beneficial impact under Criterion CC-2.

Unavoidable Adverse Effects

No unavoidable adverse climate change impacts have been identified under Alternative 3.

4.5.6 Alternative 4 – No Issuance of a Right-of-Way Grant (No Action)

Under Alternative 4, the proposed Desert Sunlight Solar Farm Project 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. As a result, none of the construction or operation air emissions from the Proposed Project would occur and none of the benefits of the Proposed Project in displacing fossil fuel fired generation and reducing associated pollutant emissions would occur. However, the land on which the project is proposed would become available to other uses that are consistent with BLM's land use plan, including another solar project requiring a land use plan amendment. In addition, in the absence of this project, other renewable energy projects may be constructed to meet State and Federal mandates, and those projects would have similar impacts in other locations.

4.5.7 Alternative 5 – No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Exclude Solar Energy Development on the Site (No Action with Plan Amendment)

Under Alternative 5, the proposed Desert Sunlight Solar Farm Project 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, 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 the CDCA Plan would be amended to make the area unavailable for future solar energy development, 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. As a result, the air quality of the site is not expected to change noticeably from existing conditions and, as such, this No Action Alternative would not result in the climate change impacts expected under the Proposed Project nor would it result in the climate change benefits from the Proposed Project. However, in the absence of this project, other renewable energy projects may be constructed to meet State and Federal mandates, and those projects would have similar impacts in other locations.

4.5.8 Alternative 6 – No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Allow Solar Development on the Site (No Action with Plan Amendment)

Under Alternative 6, the proposed Desert Sunlight Solar Farm Project would not be approved by the BLM and the BLM would amend the CDCA Plan to allow for other solar projects on the site. As a result, it is possible that another solar energy project could be constructed on the project site.

Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. If that were to happen, greenhouse gas emissions would result from the construction and operation of the solar technology and would likely be similar to the climate change impacts from the Proposed Project. Different solar technologies require different amounts of grading and maintenance; however, it is expected that all the technologies would require some grading and maintenance. The benefits of the Proposed Project in displacing fossil fuel fired generation and reducing associated pollutant emissions could occur with a different solar technology at this site and therefore with this alternative. As such, this No Action Alternative could result in climate change impacts and benefits generally similar to the impacts under the Proposed Project.

4.5.9 Cumulative Impacts

Cumulative climate change impacts occur over such large geographic areas and over such long time frames that there are few practical limits on potential cumulative effects in terms of geographic extent or time frame.

Geographic Extent

Climate change effects from greenhouse gases occur at regional, continental, and global geographic scales. Local emissions of greenhouse gases become a smaller fraction of cumulative greenhouse gas emissions as geographic scale increases from regional to continental and global scales.

Time Frame

Greenhouse gas pollutants typically have long atmospheric residence times, ranging from several years to centuries. The conventional assessment of global warming potentials uses a 100-year time frame. In contrast to ambient air quality conditions, climate change conditions at any point in time are driven primarily by cumulative historical greenhouse gas emissions rather than recent greenhouse gas emissions.

Existing Cumulative Conditions: Climate Change

Recent climate trends represent the cumulative effect of regional, continental, and global climate change conditions. Evaluations of climate change conditions in California tend to focus on southern California urban areas, coastal areas, the Central Valley, and the Sierra rather than on desert areas, in part because there are fewer long-term meteorological stations in desert areas. Reviews of historical climate data for California (California Energy Commission 2009) indicate that:

- There has been a greater increase in average temperature in the western US than in the US as a whole.
- Average nighttime minimum temperatures in California have increased more than average daytime maximum temperatures. Since 1920, the average nighttime minimum temperature in California has increased 0.33 degrees Fahrenheit per decade while the average daytime maximum temperature has increased 0.1 degrees Fahrenheit per decade.
- Desert areas of California are showing temperature change patterns consistent with average California patterns.
- Irrigated agriculture in the Central Valley has produced a slight decline in average maximum daytime temperatures in that region since the 1920s.
- The average number of winter chill hours (hours with temperatures below 45 degrees Fahrenheit) in the Central Valley has decreased since 1950.
- There has been an increase in the number of heat stress events over the last 50 years.
- A larger fraction of annual precipitation in the Sierra is falling as rain rather than as snow.
- Average April 1st snowpack conditions in the Cascades and northern Sierra have decreased since 1950, while average April 1st snowpack conditions in the southern Sierra have increased.
- Sierra snowmelt is beginning earlier in the spring.

- The fraction of annual Sierra runoff that occurs from April through July has decreased in both the Sacramento Valley and the San Joaquin Valley.
- Changes in Sierra precipitation patterns and snowpack conditions are producing higher spring runoff volumes and lower summer runoff volumes in rivers and creeks.
- Spring climate conditions are starting earlier and autumn climate conditions are starting later in the year. These changes are affecting the life cycles of some plants and animals, as well as the migratory patterns of some wildlife.
- The ranges of Sierra vegetation and wildlife are shifting to the north and to higher elevations.
- Wildfire events have increased in frequency, duration, and size, partly due to the consequences of increased fuel accumulations from historic fire suppression activities and partly due to changing climate conditions.
- Average water temperatures are increasing in high elevation lakes.
- Sea levels have been rising globally since the end of last glaciation (about 10,000 years ago), but the rate of sea level rise has increased in recent decades. During the past century, sea levels along the California coast have risen about seven inches.

A recent report (California Climate Action Team 2009) summarizes some of the implications of on-going climate change trends:

- Per-household electricity consumption is expected to increase for most of California as energy increases for summer cooling demands exceed energy reductions from reduced winter heating requirements.
- Temperature increases may offset some of the benefits of emission reduction programs, especially in terms of ozone levels. One analysis for southern California predicts climate-related increases in ozone levels for Orange County and Los Angeles County, little effect in the Riverside area, and decreased ozone levels for the Palm Springs area.
- A general decrease in annual precipitation levels for most of California, with a possible increase in precipitation amounts for the northern-most portion of the state.
- A shift in seasonal runoff conditions for the central and northern Sierra, with greater winter runoff volumes and lower spring and summer runoff volumes.
- Increased frequency, duration, and size of wildfires for forested areas, with less change from current conditions for many desert areas.
- Increased heat-related mortality in most areas of California.
- Variable effects on agricultural crop yields, but with many crop types experiencing reduced yields and greater vulnerability to extreme weather conditions.

Because the geographic extent and time frames associated with climate change are so large, all projects listed in Table 3.18-2 have the potential for some cumulative effect in combination with the various project alternatives. Additional considerations regarding cumulative climate change impacts for the various project alternatives in combination with existing conditions are presented below.

Action Alternatives (Alternatives 1, 2, and 3)

Alternatives 1, 2, and 3 would have short-term greenhouse gas emissions associated with construction activities, and small levels of on-going greenhouse gas emissions associated with facility operations. These greenhouse gas emissions would be more than offset by avoided greenhouse gas emissions associated with alternative power generation sources. Alternatives 1, 2, and 3 would displace alternative power generation for SCE and PG&E, resulting in an indirect climate change benefit by avoiding future greenhouse gas emissions from alternative power generation facilities. Because Alternatives 1, 2, or 3 would each have a net beneficial impact in terms of climate change, there would be no adverse cumulative climate change impacts from Alternatives 1, 2, or 3 in combination with existing cumulative climate change conditions.

No Action Alternatives (Alternatives 4, 5, and 6)

There would be no cumulative climate change impacts under Alternatives 4, 5 or 6 because there would be no right-of-way grant for development of the solar farm area and associated facilities. Any future proposals for use of the site would be subject to separate environmental analysis.

Future Foreseeable Projects

Foreseeable Projects in the Project Area

Due to the large geographic extent and time frame for cumulative climate change impacts, all of the projects listed in Table 3.18-3 would have the potential for cumulative impacts in combination with the action alternatives for Desert Sunlight.

Action Alternatives (Alternatives 1, 2, and 3)

Alternatives 1, 2, and 3 would have short-term greenhouse gas emissions associated with construction activities, and small on-going greenhouse gas associated with facility operations. These greenhouse gas emissions would be more than offset by avoided greenhouse gas emissions associated with alternative power generation sources. Alternatives 1, 2, and 3 would displace alternative power generation for SCE and PG&E, resulting in an indirect climate change benefit by avoiding future greenhouse gas emissions from alternative power generation facilities. In addition, other solar energy projects listed in Table 3.18-3 would also have net climate change benefits by avoiding future greenhouse gas emissions from alternative power generation facilities. Because Alternatives 1, 2, or 3 would each have a net beneficial impact in terms of climate change, there would be no adverse cumulative climate change impacts from Alternatives 1, 2, or 3 in combination with foreseeable projects in the project area.

No Action Alternatives (Alternatives 4, 5, and 6)

There would be no cumulative greenhouse gas emission impacts under Alternatives 4, 5 or 6 because there would be no right-of-way grant for development of the solar farm area and associated facilities. Any future proposals for use of the site would be subject to separate environmental analysis.

Foreseeable Renewable Projects in the California Desert

Due to the large geographic extent and time frame for cumulative climate change impacts, all of the projects listed in Table 3.18-1 would have the potential for cumulative impacts in combination with the action alternatives for Desert Sunlight.

Action Alternatives (Alternatives 1, 2, and 3)

Alternatives 1, 2, and 3 would have short-term greenhouse gas emissions associated with construction activities, and small on-going greenhouse gas associated with facility operations. These greenhouse gas emissions would be more than offset by avoided greenhouse gas emissions associated with alternative power generation sources. Alternatives 1, 2, and 3 would displace alternative power generation for SCE and PG&E, resulting in an indirect climate change benefit by avoiding future greenhouse gas emissions from alternative power generation facilities. In addition, other solar energy projects listed in Table 3..18-1 would also have net climate change benefits by avoiding future greenhouse gas emissions from alternative power generation facilities. Because Alternatives 1, 2, or 3 would each have a net beneficial impact in terms of climate change, there would be no adverse cumulative climate change impacts from Alternatives 1, 2, or 3 in combination with foreseeable projects in the California Desert.

No Action Alternatives (Alternatives 4, 5, and 6)

There would be no cumulative greenhouse gas emission impacts under Alternatives 4, 5 or 6 because there would be no right-of-way grant for development of the solar farm area and associated facilities. Any future proposals for use of the site would be subject to separate environmental analysis.

Overall Conclusions

The alternative Desert Sunlight projects would have short-term direct greenhouse gas emissions during facility construction and long-term small levels of direct greenhouse gas emission during project operations. These small quantities of direct greenhouse gas emissions would be greatly offset by avoided greenhouse gas emissions associated with alternative power generation sources displaced by the power generation of Alternatives 1, 2, or 3. Alternatives 1, 2, and 3 also would further the objectives of CARB's AB32 scoping plan. Because Alternatives 1, 2, or 3 would each have a net beneficial impact in terms of climate change, there would be no adverse cumulative climate change impacts from Alternatives 1, 2, or 3 in combination with past, present, or foreseeable future projects in the project area or elsewhere in the California Desert.

4.6 CULTURAL RESOURCES

4.6.1 Methodology for Analysis

Impacts on cultural resources occur when there is damage or loss of cultural resources or their settings. For the purposes of this analysis the primary indicator for determining if an impact would occur is the effects on cultural resources that are listed on, eligible for listing on, or unevaluated for listing on the National Register of Historic Places (NRHP) or areas of importance to Native American or other traditional communities. Specific indicators include the following:

- Acres and relative depth of ground-disturbing activities permitted, and their potential for affecting known or unknown cultural resources, or areas of importance to Native American or other traditional communities;
- Increased access to, or activity in, areas where resources are present or anticipated. Vandalism or unauthorized collecting can destroy a cultural resource in a single incident. Exposure of cultural resources or access to areas where cultural resources are present can increase the risk of vandalism or unauthorized collection of materials;
- The extent to which an action changes the potential for erosion or other natural processes that could affect cultural resources. Natural processes, such as erosion or weathering, will degrade the integrity of many types of cultural resources over time. Human visitation, vehicle use, vegetation treatments, and other activities can increase the rate of deterioration through natural processes. While the effect of a few incidents may be negligible, the effect of repeated uses or visits over time could increase the intensity of impacts due to natural processes;
- The extent to which an action alters the setting (such as visual and audio factors) of cultural resources; and
- The extent to which an action alters the availability of cultural resources for appropriate uses.

Under NEPA, impacts on cultural resources are assessed by applying the criteria of adverse effect as defined in Title 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (NHPA). According to 36 CFR §800.5a: "An adverse effect is found when an action may alter the characteristics of a historic property that qualify it for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the action that may occur later in time, be farther removed in distance, or be cumulative." Assessment of effects involving Native American or other traditional community, cultural, or religious practices or resources also requires focused consultation with the affected group.

Unanticipated impacts from discovery of unknown resources would be minimized or avoided by compliance with laws and executive orders designed to preserve and protect cultural resources. BLM and the Applicant are presently developing a Programmatic Agreement (PA) to address cultural resource management as part of the Project compliance with applicable laws and requirements. These laws and requirements include, but are not limited to the Antiquities Act of 1906, the NHPA Sections 106 and 110(a), the Archaeological Resources Protection Act (ARPA) Section 4(a), the Native American Graves Protection and Repatriation Act (NAGPRA), the American Indian Religious Freedom Act (AIRFA), and Executive Orders 13175 and 13007. The BLM also has its own cultural resource policies, directives, and standards outlined in the BLM 8100 Manual Series, the National Programmatic Agreement for responsibilities under NHPA, and the State Protocol Agreement among California BLM, California State Historic Preservation Officer (SHPO), and Nevada SHPO.

The Applicant has incorporated a cultural resources monitoring and mitigation plan into the project description. Under all action alternatives, this monitoring program will reduce unanticipated significant impacts on unidentified cultural resources. This includes impacts on subsurface cultural resources, especially within Solar Farm areas identified by the geo archaeological survey as having the potential to contain buried archaeological deposits, as well as surface resources that may not have been recognized by the Class III survey. Some unanticipated impacts, although mitigated under Section 106 of the NHPA, may not be able to be reduced to less than significant under NEPA or CEQA.

For the purposes of this analysis, effects to cultural resources under CEQA are also considered. The criteria for significant effects under CEQA are similar to those discussed above (see CEQA Significance Criteria below).

Some impacts are direct, while others are indirect and affect cultural resources through a change in another resource. Direct impacts are those resulting from the project and include ground disturbances within archaeological sites or demolition of historic buildings and structures. Direct impacts can also occur through new construction of buildings and/or structures within the setting of a cultural resource that are out of character with the historic significance or traditional values of that resource. Indirect impacts are caused by a project, but can occur later in time or farther removed in distance. Potential indirect impacts include new construction within the viewshed or audible area around a sacred site, traditional cultural property (TCP) or traditional use area, or removal of traditional resources used by affected communities.

Impacts on cultural resources are typically considered permanent as these resources are finite and disturbance of them, particularly archaeological sites, cannot be reversed. However, impacts on historic landscapes or the viewsheds of historic or other significant areas 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 CRHR and assumed eligible for the NRHP. Table 4.6-1 summarizes the resources affected by each action alternative. It is important to note that in addition to the defined resources below, each action alternative would also affect the potential DTC-CAMA historic district as well as the less tangible historic landscapes of nearby NRHP-eligible and listed resources. These include:

- The Colorado River Aqueduct;
- The NRHP-listed North Chuckwalla Mountains Petroglyph District (CA-RIV-1383);

Table 4.6-1
Comparison of Cultural Resource Sites and Isolates Within Action Alternatives*

Alternative	Total Sites
Alternative 1: Proposed Action (SF-B, GT-A-1, and Red Bluff Substation A [including Access Road #2 and other features])	73 (64 Historic, 6 Prehistoric, 1 Multicomponent, 2 Unknown) 1 NRHP- and CRHR-listed 26 Potentially CRHR-Eligible and Assumed NRHP-Eligible
Alternative 2: Alternate Action (SF-B, GT-B-2, Red Bluff Substation B)	58 (51 Historic, 5 Prehistoric, 2 Unknown) 25 Potentially CRHR-Eligible and Assumed NRHP-Eligible
Alternative 3: Reduced Solar Farm Footprint (SF-C, GT-A-2,** and Red Bluff Substation A [including Access Road #1 and other features])	41 (35 Historic, 4 Prehistoric, 1 Multicomponent, 1 Unknown) 1 NRHP- and CRHR-listed 19 Potentially CRHR-Eligible and Assumed NRHP Eligible

Source: ECORP (2009, IP)
*These resources are in addition to the potential DTC-CAMA Historic District and historic landscapes listed above. Resources that are within multiple project components in an alternative are counted only once.
**An approximate 5-mile-long section of GT A-2 could not be accessed during the Class III survey. Additional unidentified resources likely exist within this portion of the corridor.

- The NRHP-listed North Chuckwalla Mountains Quarry Archaeological District (CA-RIV-1814); and
- The NRHP-eligible prehistoric site CA-RIV-330.

4.6.2 CEQA Significance Criteria

Under CEQA, the Project would cause a significant impact if it causes 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. Under CEQA, 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.

4.6.3 Alternative 1 – Proposed Action

Construction

Solar Farm Layout B

Construction of SF-B would require clearing and grading that would directly impact archaeological sites, built environment resources, and 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, resources that would be directly impacted by construction of SF-B include 37 sites (32 historic, 3 prehistoric, and 2 unknown-era) and the potential DTC-CAMA historic district. Nine of the historic sites within SF-B are believed to be associated with the DTC. Indirect visual and audible impacts would occur on the historic landscapes of the Colorado River Aqueduct (NRHP-eligible), the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible).

NRHP eligibility determinations of sites recorded by ECORP (ECORP 2010b) have not yet been made by the BLM but will be guided by the PA governing Section 106 compliance for this Project. For the purposes of this analysis, all resources within SF-B without existing NRHP eligibility determinations are assumed to be NRHP eligible. Seventeen of the sites have been recommended as potentially CRHR-eligible. Physical disturbance of NRHP-eligible sites would constitute a significant impact under NEPA. The PA that is currently being developed to comply with Section 106 will also prescribe mitigation measures that would be implemented by the Applicant in coordination with applicable responsible agencies to resolve adverse effects to NRHP-eligible sites. However, given that the PA and associated consultations are still in progress, unmitigable impacts on cultural resources under NEPA may still occur.

Native American consultations were initiated in mid-April 2010 and are ongoing. No sacred sites, TCPs, or traditional use areas have been identified, but such areas may be identified as the consultation process moves forward. If such areas are identified, the Project may have direct and indirect impacts on them as a result of construction, which may be incompatible with traditional use of SF-B or the surrounding area, or by excluding Native American access to such areas.

Gen-Tie Line A-1

Construction of GT-A-1 would require clearing and grading of the entire line corridor that would directly impact archaeological sites, built environment resources, and 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 degradation of preservation value. Specifically, resources that would be directly impacted by construction of GT-A-1 include 12 sites (10 historic and 2 prehistoric). Indirect visual and audible impacts would occur on the historic landscapes of the Colorado River Aqueduct (NRHP-eligible), the potential DTC-CAMA Historic District (potentially NRHP and CRHR eligible), the North Chuckwalla Petroglyph

District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible).

Direct impacts on archaeological, built environment, and historic landscape resources from construction of GT-A-1 would be qualitatively the same as those described for SF-B. However, GT-A-1 would impact significantly fewer sites than SF-B. Further, only six sites within the GT-A-1 corridor have been recommended as CRHR-eligible. Impacts on the potential DTC historic district would also be less than SF-B since none of the sites within the GT-A-1 corridor are associated with the DTC.

Impacts related to Native American resources as a result of GT-A-1 construction would be the same as described for SF-B.

Red Bluff Substation A

Construction of Red Bluff Substation A and its associated components would require clearing and grading that would directly impact archaeological sites, built environment resources, and 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 degradation of preservation value. Specifically, resources that would be directly impacted by construction of Substation A and its associated components (Access Road #2, transmission loop-in line, distribution line corridor, and the telecom site) include 23 sites (21 historic, 1 multicomponent, and 1 prehistoric). The one prehistoric site recorded within the Substation A (distribution line) is an NRHP-listed site that contributes to the North Chuckwalla Petroglyph District (CA-RIV-1383). As such, direct impacts would also occur on the landscape of the district. Indirect visual and audible impacts would occur on the historic landscapes of the Colorado River Aqueduct (NRHP-eligible), potential DTC-CAMA Historic District (potentially CRHR and NRHP eligible), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible).

Direct impacts on archaeological, built environment, and historic landscape resources from construction of Substation A and its components would be qualitatively the same as those described for SF-B. Substation A would impact fewer sites than SF-B; however, one of those sites is NRHP-listed CA-RIV-1383. Four other sites are potentially eligible for the CRHR, and CA-RIV-1383 is automatically CRHR-eligible, based on its NRHP listing. Impacts on the potential DTC-CAMA historic district would also be less than SF-B since none of the sites within the Substation A area are associated with the DTC.

Impacts related to Native American resources as a result of Substation A construction would be the same as described for SF-B.

Summary of Construction Impacts

Development of Alternative 1 would directly and permanently impact at least 73 sites directly within the construction footprint of alternative components, including one archaeological site, CA-RIV-1383, as well its associated petroglyph district that are listed on the NRHP. Twenty-six of the sites are potentially CRHR-eligible and CA-RIV-1383's NRHP listing makes it CRHR eligible. Clearing and grading would disturb all of these resources. In addition, Alternative 1 would directly impact the potential DTC-CAMA historic district as well as the North Chuckwalla Petroglyph District (CA-

RIV-1383, NRHP-listed). Alternative 1 would indirectly impact the historic landscapes of the Colorado River Aqueduct (NRHP-eligible), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible) by constructing modern elements that would disturb the historic setting of these resources.

Quantitatively, Alternative 1 would have the most impact on cultural resources amongst the action alternatives. Based on the types of sites that would be impacted, Alternative 1 would have the most qualitative impact on cultural resources, NRHP-listed and -eligible resources, and sites associated with the DTC.

Native American consultation is on-going at this time and may find that sacred sites, TCPs, or traditional use areas are present within or near the Alternative 1 construction area. Construction may directly disturb Native American resources, impede access to these areas, or otherwise disrupt traditional practices.

Operation and Maintenance

Solar Farm Layout B

Operation and maintenance of SF-B would indirectly impact the setting and historic landscapes of the potential DTC-CAMA historic district, Colorado River Aqueduct (NRHP-eligible), the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible) by altering the historic setting of these resources and degrading their preservation value.

Native American consultations are also continuing at this time. Although no sacred sites, TCPs or traditional use areas have been identified, such areas may be identified as the consultation process moves forward. If such areas are identified, the operation and maintenance of SF-B may have direct and indirect impacts on them, including incompatible land use (such as disruption of a viewshed from a traditional use area) or by excluding Native American access to Native American resources within the Solar Farm area.

Gen-Tie Line A-1

Operation and maintenance of GT-A-1 would have the same impact on cultural resources as described for the operation and maintenance of SF-B.

Red Bluff Substation A

Operation and maintenance of Red Bluff Substation A and its components would have the same impact on cultural resources as described for the operation and maintenance of SF-B.

Summary of Operation and Maintenance Impacts

Operation and maintenance of Alternative 1 would primarily have indirect impacts on the historic landscapes of five resources and possibly an unknown number of Native American resources. These impacts would stem from new construction within these landscapes that will not be in keeping with the historic nature and setting of the resources. Further the presence of Alternative 1 components may exclude Native American access to resources of traditional significance or detract from the viewshed of a sacred site, traditional use area, or TCP.

Decommissioning

Solar Farm Layout B

Decommission and removing SF-B components would eliminate the indirect impacts on cultural resources described above for construction of SF-B. The historic landscapes of the Colorado River Aqueduct (NRHP-eligible), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible) would be restored by restoring the natural and historic setting of these resources. The same effect would occur for the viewsheds of sacred sites, traditional use areas, or TCPs. Further, access to Native American resources within the boundaries of SF-B would be restored. However impacts on the potential DTC-CAMA Historic District and the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed) would remain since archaeological sites that contribute to these districts would be permanently affected by construction of Alternative 1.

Gen-Tie Line A-1

Decommissioning of GT-A-1 would have the same impact on cultural resources as described for the decommissioning of SF-B.

Red Bluff Substation A

Decommissioning of Red Bluff Substation A and its components would have the same impact on cultural resources as described for the decommissioning of SF-B.

Summary of Decommissioning Impacts

Decommissioning of Alternative 1 would restore the historic landscapes of three other NRHP-eligible or –listed cultural resources. Additionally, the viewshed of possible sacred sites, TCPs, and traditional use areas would be restored, as would access by Native Americans to use such areas within the Alternative 1 project area. However, direct impacts on one potential historic district and another NRHP- and CRHR-listed district would remain since construction of Alternative 1 would permanently affect sites that contribute to these districts.

Summary of Combined Impacts for Alternative 1

A total of 73 sites, one NRHP-listed and all others assumed NRHP-eligible, are within the footprint of Alternative 1 and would be impacted by construction. Twenty-six of the sites are potentially CRHR-eligible, while the NRHP-listed site is CRHR-eligible. In addition, the potential DTC-CAMA Historic District and the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed) would be directly and permanently impacted by affecting contributing sites. The historic landscapes of the Colorado River Aqueduct (NRHP-eligible), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible) would be indirectly impacted by Alternative 1. Impacts on these historic landscapes would be eliminated in the decommissioning phase of Alternative 1.

Applicant Measures and Mitigation Measures

Adverse effects that the proposed or alternative actions may have on cultural resources shall be resolved through compliance with the terms of a PA under Section 106 of the NHPA. In accordance with 36 CFR § 800.14(b), PAs are used to resolve adverse effects when effects on historic properties cannot be fully identified before an undertaking is approved. The BLM shall prepare a PA in consultation with the SHPO, Indian tribes, and other interested parties. The PA will govern identification and evaluation of historic properties (eligible for the NRHP), as well as the resolution of any adverse effects under Section 106 that may result from the proposed or alternative actions. When the PA is executed and fully implemented, the Project will have fulfilled the requirements of Section 106. The PA shall be executed prior to BLM's approval of the Record of Decision.

To the extent they are consistent with the PA being developed for this Project, the following mitigation measures shall be applied to mitigate impacts under NEPA. Additional mitigation measures, developed pursuant to the PA process, may also be implemented.

AM-CUL-1: A cultural resources monitoring and mitigation plan has been included as a project design feature and BMP to minimize impacts on cultural resources. The content of this plan is described in Section 2.5 of Chapter 2 of this EIS and includes 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. Further, responsible parties for mitigation measures would be identified.

The following mitigation measures shall be applied in order to reduce impacts on cultural resources under NEPA.

MM-CUL-1. The in-progress PA shall detail the process for activities to proceed in areas where historic properties are now known not to exist; the process for phased completion of field investigations for the evaluation of cultural resources and assessment of effects; a historic property treatment plan (HPTP); procedures to resolve adverse effects under Section 106; coordination between the CEQA process and Section 106 compliance; procedures for inadvertent discoveries; the process for treating human remains (NAGPRA Plan); compliance monitoring; dispute resolution; and tribal participation. Resolution of effects to cultural resources eligible for or listed on the NRHP may include research and documentation, data recovery excavations, curation, public interpretation, use or creation of historic contexts (especially for historic landscapes and the potential DTC-CAMA historic district), and/or report distribution.

MM-CUL-2. On the basis of preliminary CRHR eligibility assessments, NRHP eligibility assessments made under the PA, or existing NRHP eligibility determinations, the BLM and CPUC may require the relocation of project components to avoid or reduce damage to cultural resource values. Where operationally feasible, potentially NRHP-eligible resources shall be protected from direct project impacts by project redesign within previously surveyed and analyzed areas.

MM-CUL-3. Where the BLM and CPUC decide that CRHR or NRHP-eligible or –listed cultural resources cannot be protected from direct impacts by project redesign, the Applicant shall comply with appropriate mitigative treatment(s) that will be detailed in the PA and cultural resources mitigation and monitoring plan.

MM-CUL-4. All CRHR-listed or eligible cultural resources (as determined by the CPUC) and all NRHP-listed or eligible cultural resources (as determined by the BLM) that will not be affected by direct impacts, but are within 50 feet of project locations will be monitored by a qualified archaeologist. Protective fencing, or other markers, at the BLM's discretion, shall be erected and maintained to protect these resources from inadvertent trespass for the duration of construction in the vicinity.

MM-CUL-5. The historic property treatment plan that will be included in the PA will, at a minimum, employ avoidance, mitigation, and data recovery as mitigation alternatives. As part of the historic property treatment plan, the Applicant shall prepare a research design and a scope of work for evaluation of cultural resources and for data recovery or additional treatment of NRHP-eligible sites that cannot be avoided. Data recovery on most resources would consist of sample excavation and/or surface artifact collection, and site documentation. A possible exception would be a site where burials, cremations, or sacred features are discovered that cannot be avoided. Additional content of the treatment plan will be dictated by the consultations associated with the PA.

MM-CUL-6. Construction work within 100 feet of cultural resources that require data-recovery fieldwork shall not begin until authorized by the BLM.

MM-CUL-7. Archaeological monitoring shall be conducted by a qualified archaeologist familiar with the types of historical and prehistoric resources that could be encountered within the 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 Native American tribes. The monitoring plan shall indicate the locations where Native American monitors will be required and shall specify the tribal affiliation of the required Native American monitor for each location. The Applicant shall retain and schedule any required Native American monitors.

MM-CUL-8. In the event of inadvertent discoveries during construction, operation and maintenance, or decommissioning, procedures outlined in the PA and the monitoring and mitigation plan will be adhered to. At a minimum, this will include stop work orders in the vicinity of the find, recordation and evaluation of the find by a qualified archaeologist, notification of the find to BLM, and appropriate treatment measures, possibly including data recovery or avoidance.

MM-CUL-9. The BLM will continue to consult with Indian tribes to identify sacred sites, TCPs and traditional use areas that might be affected by the Project. If such places are identified, the BLM will consult further with tribes to resolve access impediments or other identified impacts. This may include re-design of the Project.

CEQA Significance Determination

Solar Farm Layout B

Construction and operation of SF-B would have significant impacts under CEQA criteria CR-1 (substantial adverse change in significance of a historical resource) and CR-2 (substantial adverse change in the significance of an archaeological resource). SF-B would directly impact 17 potentially CRHR-eligible resources as well as the potential DTC-CAMA historic district. The historic landscapes of the Colorado River Aqueduct (CRHR-eligible), the North Chuckwalla Petroglyph District (CA-RIV-1383, CRHR-eligible), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, CRHR-eligible), and prehistoric site CA-RIV-330 (CRHR-eligible) would be indirectly visually and audibly impacted. All are considered historical resources under CEQA. Construction of SF-B would also directly impact 20 other archaeological resources. Operation of SF-B would significantly impact the potential DTC-CAMA Historic District and the historic landscapes listed. Further, there is a potential for subsurface cultural resources within SF-B to be disturbed by construction and operation. Implementation of MM-CUL-1 and -2 would reduce the significance of these impacts, however until the PA and consultations are completed, CRHR-eligibility recommendations concurred with by CPUC, and treatments determined, it is unknown if these impacts can be reduced to less than significant.

Construction, operation and maintenance, and decommissioning of SF-B all have the potential to have significant impacts under CEQA criteria CR-3 (disturb human remains). Although no cultural resources have been identified as including human remains, the possibility still exists. Compliance with MM-CUL-7 and -8 would reduce the significance of this impact, however until the PA and consultations are completed and the inadvertent discovery plan completed, it is unknown if these impacts can be reduced to less than significant.

Gen-Tie Line A-1

The CEQA significance determination for GT-A-1 would be the same as that described for SF-B. GT-A-1 would directly impact six potentially CRHR-eligible resources and seven additional archaeological resources that are likely CRHR-ineligible. The historic landscapes described under SF-B would be impacted in the same manner; however, the potential DTC-CAMA Historic District would be indirectly, and not directly, impacted.

Red Bluff Substation A

The CEQA significance determination for Substation A and its associated components would be the same as that described for SF-B. Under Alternative 1, Substation A would directly impact four potentially CRHR-eligible resources, one CRHR-listed resource (based on NRHP-listing), and 18 other archaeological resources that are likely CRHR-ineligible. The historic landscapes described under SF-B would be impacted in the same manner; however, the North Chuckwalla Petroglyph District would be directly, and not indirectly, impacted as a result of direct impacts on a contributing archaeological site.

Unavoidable Adverse Effects

Impacts on cultural resources would exist after applicant and mitigation measures were implemented. Cultural resources damaged or destroyed by project construction, even if subjected to mitigation, would be permanently lost from the archaeological record. 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. Furthermore, given that the PA, which would dictate NRHP-eligibility evaluations and treatment of NRHP-eligible resources, as well as Native American consultations, are ongoing, it is unknown whether these processes to reduce adverse effects under Section 106 will be sufficient to eliminate impacts on cultural resources under NEPA.

Unavoidable adverse effects on cultural resources would result from construction, operation, and decommissioning of all of the project components under Alternative 1. At this point in time, it is unknown if impacts on cultural resources can be satisfactorily mitigated to less than significant, primarily because the PA and consultations are still in progress, as are NRHP-eligibility evaluations, treatment protocols, and CRHR-eligibility recommendation concurrence. Consultations may raise issues that cannot be resolved through mitigation measures. Prescribed treatments may resolve adverse effects under Section 106, however given the scale and potential significance of several of the resources identified, impacts under NEPA and CEQA may remain significant despite implementation of PA, other mitigation measures and the applicant measures. As such, the identified impacts of construction, operation, and decommissioning of Alternative 1 are considered unavoidable significant impacts.

4.6.4 Alternative 2 – Alternate Action

Construction

Solar Farm Layout B

The impacts resulting from constructing SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

Construction of GT-B-2 would require clearing and grading that would directly impact archaeological sites, built environment resources, and 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 degradation of preservation value. Specifically, resources that would be directly impacted by construction of GT-B-2 include 16 sites (all historic) and the landscape and area of the potential DTC-CAMA Historic District. Four of the archaeological sites are believed to be associated with historic DTC activities. The historic landscapes of the Colorado River Aqueduct (NRHP-eligible), the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible) would be indirectly visibly and audibly impacted.

Direct impacts on archaeological, built environment, and historic landscape resources from construction of GT-B-2 would be qualitatively the same as those described for SF-B. However, GT-B-2 would impact significantly fewer sites than SF-B. Further, only seven sites within the GT-B-2 corridor have been recommended as CRHR-eligible. Impacts on the potential DTC historic district would be slightly less than SF-B as fewer potentially DTC-related sites are within the GT-B-2 corridor.

Impacts related to Native American resources as a result of GT-B-2 construction would be the same as described for SF-B.

Red Bluff Substation B

Construction of Red Bluff Substation B and its associated components would require clearing and grading that would directly impact archaeological sites, built environment resources, and 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 degradation of preservation value. Specifically, resources that would be directly impacted by construction of Substation B include seven sites (5 historic, 2 prehistoric). The historic landscapes of the Colorado River Aqueduct (NRHP-eligible), the potential DTC-CAMA Historic District (potentially CRHR and NRHP eligible), the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible) would be indirectly audibly and visually impacted.

Direct impacts on cultural resources from construction of Substation B would be qualitatively the same as those described for Substation A under Alternative 1. Substation B would impact fewer sites however and, other than the historic landscapes listed above, does not include any resources on the NRHP. Three of the sites are potentially eligible for the CRHR. None of the sites are believed to be associated with the DTC.

Impacts related to Native American resources as a result of Substation A construction would be the same as described for SF-B.

Summary of Construction Impacts

Construction of Alternative 2 would directly and permanently impact 58 sites directly within the construction footprint of alternative components as well as the potential DTC-CAMA Historic District and associated landscape. Twenty-five of the sites are potentially CRHR-eligible and are assumed to be NRHP-eligible. Thirteen of these are believed to be associated with the DTC. Clearing and grading would disturb all of these resources. In addition, all of the project components of Alternative 2 would have indirect audible and visual impacts on the historic landscapes of the Colorado River Aqueduct (NRHP-eligible), the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible) by constructing modern elements that would disturb the historic setting of these resources.

Quantitatively, Alternative 2 would have the second highest degree of impact on cultural resources amongst the action alternatives. Based on the types of sites that would be impacted, Alternative 2 would have the second most qualitative impact on cultural resources, potentially CRHR-eligible resources, and NRHP-listed and -eligible resources. It would have the most impact on the potential DTC-CAMA Historic District as it includes the most sites believed to be associated with the DTC.

Impacts on Native American resources from construction of Alternative 2 would be the same as described for construction of Alternative 1.

Even after compliance with the in-progress PA and completion of identified mitigation measures, impacts under NEPA as a result of construction of Alternative 2 may remain significant.

Operation and Maintenance

Solar Farm Layout B

The impacts resulting from operating and maintaining SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

Operation and maintenance of GT-B-2 would have the same impact on cultural resources as described for the operation and maintenance of SF-B under Alternative 1.

Red Bluff Substation B

Operation and maintenance of Red Bluff Substation B would have the same impact on cultural resources as described for the operation and maintenance of SF-B under Alternative 1.

Summary of Operation and Maintenance Impacts

Impacts on cultural resources as a result of operation and maintenance under Alternative 2 would be the same as those discussed under Alternative 1.

Decommissioning

Solar Farm Layout B

The impacts resulting from decommissioning SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

Decommissioning of GT-B-2 would have the same impact on cultural resources as described for the operation and maintenance of SF-B under Alternative 1.

Red Bluff Substation B

Decommissioning of Red Bluff Substation B would have the same impact on cultural resources as described for the operation and maintenance of SF-B under Alternative 1.

Summary of Decommissioning Impacts

Impacts on cultural resources as a result of decommissioning Alternative 2 would be the same as those discussed under Alternative 1.

Summary of Combined Impacts for Alternative 2

A total of 58 sites and the potential DTC-CAMA Historic District, all assumed NRHP-eligible would be directly impacted by construction. Twenty-five of the sites are potentially CRHR-eligible. In addition, the historic landscapes of the Colorado River Aqueduct (NRHP-eligible), the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible) would be indirectly impacted by Alternative 2. Impacts on historic landscapes would be eliminated in the decommissioning phase of Alternative 2, however impacts on the potential DTC-CAMA Historic District would remain since 13 archaeological sites believed to be associated with the district would be permanently impacted by construction of Alternative 2. This is the most potentially DTC-related sites amongst the action alternatives. Given that the PA, which would dictate NRHP-eligibility evaluations and treatment of NRHP-eligible resources, and Native American consultations are on-going, it is unknown if these processes to reduce adverse effects under Section 106 will be sufficient to eliminate impacts on cultural resources under NEPA.

Applicant Measures and Mitigation Measures

Under Alternative 2, applicant and mitigation measures would be the same as those discussed under Alternative 1.

CEQA Significance Determination

Solar Farm Layout B

The CEQA significance determination for SF-B would be the same as that discussed under Alternative 1.

Gen-Tie Line B-2

The CEQA significance determination for GT-B-2 would be the same as that described for SF-B under Alternative 1. GT-B-2 would directly impact seven potentially CRHR-eligible resources, including the potential DTC-CAMA Historic District, and 10 other sites that are likely CRHR-ineligible. Additionally, the historic landscapes described under SF-B would be indirectly impacted.

Red Bluff Substation B

The CEQA significance determination for Substation B would be the same as that described for SF-B under Alternative 1. Substation B would directly impact three potentially CRHR-eligible resources and four other sites that are likely CRHR-ineligible. Additionally, the potential DTC-CAMA Historic District and the historic landscapes described under SF-B would be indirectly impacted.

Unavoidable Adverse Effects

Unavoidable adverse effects under Alternative 2 would be the same as those described under Alternative 1.

4.6.5 Alternative 3 – Reduced Footprint Alternative

Construction

Solar Farm Layout C

Construction of SF-C would require clearing and grading that would directly impact archaeological sites, built environment resources, and 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, resources that would be directly impacted by construction of SF-C include 13 sites (9 historic, 3 prehistoric, and 1 unknown era) and the potential DTC-CAMA Historic District. Seven of the historic sites within SF-C are believed to be associated with the DTC. The historic landscapes of the Colorado River Aqueduct (NRHP-eligible), the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible) would be indirectly audibly and visually impacted.

NRHP eligibility determinations of sites recorded by ECORP (ECORP 2010b) have not yet been made by the BLM but will be guided by the PA governing Section 106 compliance for this Project. For the purposes of this analysis, all resources within SF-C are assumed to be NRHP-eligible. Thirteen of the sites have been recommended as potentially CRHR-eligible. Impacts on these cultural resources from construction of SF-C would qualitatively be the same as described for SF-B under Alternative 1. However, SF-C represents a smaller area and fewer resources would be impacted.

Impacts on Native American resources resulting from construction of SF-C would be the same as those described for SF-B under Alternative 1. However, SF-C would impact a smaller area and therefore the impact would likely be to a lesser degree.

Gen-Tie Line A-2

Construction of GT-A-2 would require clearing and grading that would directly impact archaeological sites, built environment resources, and 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 degradation of preservation value. Specifically, resources that would be directly impacted by construction of GT-A-2 include four sites (all historic) and the potential DTC-CAMA Historic District as two of the archaeological sites are believed to be associated with historic DTC activities. The historic landscapes of the Colorado River Aqueduct (NRHP-eligible), the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible) would be indirectly impacted by audible and visual effects. It is important to note the entirety of GT-A-2 could not be accessed during the Class III survey and additional resources are likely present within the corridor than what is stated here.

Direct impacts on archaeological, built environment, and historic landscape resources from construction of GT-A-2 would be qualitatively the same as those described for SF-B. However, GT-A-2 would impact significantly fewer sites than SF-B. Further, only three sites within the GT-A-2 corridor have been recommended as CRHR-eligible. Impacts on the potential DTC historic district would also be significantly less than described for SF-B since only two potentially DTC-related sites are within the GT-A-2 corridor.

Impacts related to Native American resources as a result of GT-A-2 construction would be the same as described for SF-B under Alternative 1.

Red Bluff Substation A

The impacts resulting from constructing Red Bluff Substation A under Alternative 3 would be similar to those discussed under Alternative 1 for Substation A; however instead of Access Road #2, Alternative 3 would use Access Road #1.

Construction of Substation A under Alternative 3 would directly impact 23 sites (21 historic, 1 multicomponent, 1 prehistoric) and the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed). The one prehistoric site recorded within the Substation A (distribution line and access road) is an NRHP-listed site that contributes to the North Chuckwalla Petroglyph District (CA-RIV-1383). The historic landscapes of the Colorado River Aqueduct (NRHP-eligible), the potential DTC-CAMA Historic District (potentially CRHR and NRHP eligible), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible) would be indirectly impacted by visual and audible effects.

Direct impacts on archaeological, built environment, and historic landscape resources from construction of Substation A under Alternative 3 and its components would be qualitatively the same as those described for Substation A under Alternative 1. Substation A under Alternative 3 has the same number of archaeological sites as Alternative 1, but seven fewer potentially CRHR-eligible sites. Both alternatives would impact NRHP-listed and therefore CRHR-listed resource CA-RIV-1383.

Impacts related to Native American resources as a result of Substation A construction would be the same as described for SF-B under Alternative 1.

Summary of Construction Impacts

Development of Alternative 3 would directly and permanently impact 41 sites within the construction footprint of alternative components as well as the potential DTC-CAMA Historic district and the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed). Nineteen of the sites are potentially CRHR-eligible, nine of these are believed to be associated with the DTC, and one is a contributing, NRHP-listed site in the North Chuckwalla Petroglyph District. Clearing and grading would disturb all of these resources. In addition, all of the project components of Alternative 3 would indirectly impact the historic landscapes of the Colorado River Aqueduct (NRHP-eligible), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible) by constructing modern elements that would disturb the historic setting of these resources.

Quantitatively, Alternative 3 would have the least impact on cultural resources amongst the action alternatives. Based on the types of sites that would be impacted, Alternative 3 would also have the least qualitative impact on cultural resources, potentially CRHR-eligible resources, and NRHP-listed and -eligible resources. It would have the same impact on the potential DTC-CAMA Historic District as Alternative 1 since it includes the same number of sites believed to be associated with the DTC.

Impacts on Native American resources from construction of Alternative 3 would be the same as described for construction of Alternative 1.

Even after compliance with the in-progress PA and completion of identified mitigation measures, impacts under NEPA as a result of construction of Alternative 3 may remain significant.

Operation and Maintenance

Solar Farm Layout C

Operation and maintenance of SF-C would have the same impact on cultural resources as described for the operation and maintenance of SF-B under Alternative 1.

Gen-Tie Line A-2

Operation and maintenance of GT-A-2 would have the same impact on cultural resources as described for the operation and maintenance of SF-B under Alternative 1.

Red Bluff Substation A

Operation and maintenance of Red Bluff Substation A and its components under Alternative 3 would have the same impact on cultural resources as described for the operation and maintenance of SF-B under Alternative 1.

Summary of Operation and Maintenance Impacts

Impacts on cultural resources as a result of operation and maintenance under Alternative 3 would be the same as those discussed under Alternative 1.

Decommissioning

Solar Farm Layout C

Decommissioning of SF-C would have the same impact on cultural resources as described for the operation and maintenance of SF-B under Alternative 1.

Gen-Tie Line A-2

Decommissioning of GT-A-2 would have the same impact on cultural resources as described for the operation and maintenance of SF-B under Alternative 1.

Red Bluff Substation A

Decommissioning of Red Bluff Substation A and its components under Alternative 3 would have the same impact on cultural resources as described for the decommissioning of SF-B under Alternative 1.

Summary of Decommissioning Impacts

Impacts on cultural resources as a result of decommissioning Alternative 3 would be the same as those discussed under Alternative 1.

Summary of Combined Impacts for Alternative 3

A total of 41 sites, one NRHP-listed and the rest assumed NRHP-eligible are within the footprint of Alternative 3 and would be impacted by construction. Nineteen of the sites are potentially CRHR-eligible and the NRHP-listed site is CRHR-listed. The potential DTC-CAMA Historic District and the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed) would also be directly impacted as several of the sites directly impacted are contributors to these districts. Additionally, the historic landscapes of the Colorado River Aqueduct (NRHP-eligible), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible) would be indirectly impacted by Alternative 3. Impacts on historic landscapes would be eliminated in the decommissioning phase of Alternative 3, however impacts on the potential DTC-CAMA Historic District and the North Chuckwalla Petroglyph District would remain. Given that the PA, which would dictate NRHP-eligibility evaluations and treatment of NRHP-eligible resources, and Native American consultations are on-going, it is unknown if these processes to reduce adverse effects under Section 106 will be sufficient to eliminate impacts on cultural resources under NEPA.

Applicant Measures and Mitigation Measures

Under Alternative 3, applicant and mitigation measures would be the same as those discussed under Alternative 1.

CEQA Significance Determination

Solar Farm Layout C

The CEQA significance determination for SF-C would be the same as that described for SF-B under Alternative 1. SF-B would directly impact 13 potentially CRHR-eligible resources and two likely CRHR-ineligible sites in addition to the potential DTC-CAMA Historic District. The historic other landscapes described under SF-B would be indirectly impacted as described above.

Gen-Tie Line A-2

The CEQA significance determination for GT-A-2 would be the same as that described for SF-B under Alternative 1. GT-A-2 would directly impact three potentially CRHR-eligible resources and one likely CRHR-ineligible site in addition to the potential DTC-CAMA Historic District. The historic other landscapes described under SF-B would be indirectly impacted, as described above. It should be noted that the entirety of GT-A-2 could not be surveyed during the Class III survey and additional resources likely exist within the corridor.

Red Bluff Substation A

The CEQA significance determination for the Alternative 3 version of Substation A and its associated components would be the same as that described for SF-B under Alternative 1. Under Alternative 3, Substation A would directly impact four potentially CRHR-eligible resources, one CRHR-listed resource, and 18 likely CRHR-ineligible sites in addition to the potential DTC-CAMA Historic District and the North Chuckwalla Petroglyph District. The historic other landscapes described under SF-B would be indirectly impacted, as described above.

Unavoidable Adverse Effects

Unavoidable adverse effects under Alternative 3 would be the same as those described under Alternative 1.

4.6.6 Alternative 4—No Issuance of a Right-of-Way Grant and No Land Use Plan Amendment (No Action)

Under this alternative, the proposed Project would not be approved by the BLM and BLM would not amend the CDCA Plan. As a result, no Solar Farm, Gen-Tie Line, or Substation would be constructed in the project locations 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 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 new ground disturbance. As a result, no loss or degradations to cultural resources from construction or operation of the proposed Project would occur. However, the land on which the Project is proposed would be available to those facilities identified in the existing CDCA Plan, as well as those that may be considered through the Plan Amendment process and could result in future impacts on cultural resources. In addition, in the absence of this Project, other renewable energy projects may be constructed to meet state and federal mandates, and those projects would have similar impacts in this or other locations. Project impacts from another renewable energy project would likely be similar to those that would result from the proposed Project.

4.6.7 Alternative 5—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Unsuitable for Solar Energy Development (No Action with Plan Amendment)

Under this alternative, the proposed Project 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, no project would be constructed, and the BLM would continue to manage the site consistent with the existing land use designation and uses as set forth in the CDCA Land Use Plan of 1980, as amended.

Even though the CDCA Plan would be amended to make the area unavailable for future solar energy development, it is possible that the site could be developed for use by a different, non-solar renewable energy technology or allowable other use (e.g., mining). As a result, the land would remain available for other uses, which could affect cultural resources in the Project area. In addition, in the absence of the proposed Project, other renewable energy projects (e.g., mining, grazing, recreation, utilities and other energy development) may be constructed in other areas in order to meet state and federal mandates, and those projects would have similar impacts as in other locations. Project impacts from another non-solar renewable energy project would likely be similar to those that would result from the proposed Project.

4.6.8 Alternative 6—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Suitable for Solar Development (No Action with Plan Amendment)

Under this alternative, the proposed Project would not be approved by the BLM and the BLM would amend the CDCA Plan to allow for other solar projects on the site. As a result, it is possible that another solar energy project could be constructed on the project area.

Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. Different solar technologies require different amounts of grading and maintenance; however, it is expected that all solar technologies require grading and ground disturbance, and this would likely result in a loss or degradation of cultural resources. As such, this No Action Alternative would result in impacts on cultural resources similar to the impacts under the proposed Project.

4.6.9 Cumulative Impacts

Cumulative impacts on cultural resources take into account the proposed Project's impacts as well as those likely to occur as a result of other existing, proposed and reasonably foreseeable projects. When analyzing cumulative impacts on cultural resources, an assessment is made of the impacts on individual resources as well as the inventory of cultural resources within the cumulative impact analysis area.

Geographic Extent

The regulations implementing Section 106 of the NHPA contemplate close coordination between the NEPA and NHPA processes (36 CFR §800.8) and expressly integrate consideration of cumulative concerns within the analysis of a proposed action's potential direct and indirect effects by defining "adverse effect" to include "reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative" (36 CFR §800.5(a)(1)).

Consequently, the geographic scope of the cumulative effects analysis could be limited to the area defined above. However, the cumulative analysis impact area for cultural resources is broader to provide for a more conservative cumulative analysis and includes the Chuckwalla Valley, the cultural sites, traditional use areas, and cultural and historic landscapes on the project area, especially the potential DTC-CAMA Historic District and North Chuckwalla Petroglyph District. This larger area encompasses a cultural region, which is typically defined by geographic features such as the valley. Further, the overall impact on DTC-CAMA must be taken into consideration as most of the renewable energy projects proposed or under construction in southeast California are within the boundaries of this potential historic district. In addition, the cumulative impacts analysis for cultural resources takes into account the potential for alteration of the historic and cultural landscape of the analysis area as well as the area's archaeological inventory.

Existing Cumulative Conditions

A discussion of the prehistoric, ethnographic, and historic setting of the Chuckwalla Valley is included in Section 3.6, as are the results of the Class III survey that identified hundreds of cultural resources within the alternative Project and surrounding areas. There are also portions of the Solar Farm area that has heightened potential for unidentified subsurface resources. The overall project area can be characterized as highly sensitive for prehistoric and historic-era resources.

Past, Present, and Reasonably Foreseeable Future Projects

Land use in the cumulative analysis area has been historically altered by human activities that have both deposited and degraded cultural resources. ROW applications have been submitted for projects encompassing thousands of acres within the cumulative analysis area for cultural resources. Reasonably foreseeable future projects that could impact cultural resources in the cumulative impacts area characterize overall development trends in the Chuckwalla Valley. The past, present, and reasonably foreseeable projects considered cumulative projects for this EIS are described in Section 3.18.4 and their locations are shown in Figures 3.18-1and 3.18-2. These are primarily large-scale renewable energy projects that require extensive grading and development. Other projects in the cumulative study area include several transmission lines and non-renewable energy projects, as well as residential and commercial developments. Ground disturbances and modern construction associated with these types of projects would be on a smaller scale than the proposed Project and alternatives, given the smaller acreage generally involved with these cumulative projects. In addition to permanent construction impacts, such as direct disturbance and degradation of archaeological sites, these cumulative projects would have ongoing operational impacts on historic landscapes and districts, specifically the potential DTC-CAMA Historic District. Therefore, past, present, and reasonably foreseeable projects that include ground disturbing and large-scale construction are considered for this analysis as they are likely to impact cultural resources under impact criteria CR-1, CR-2, and CR-3 described above. This would include non-energy-related, non-renewable energy, transmission lines, wind power, and solar power projects. However, the projects themselves will likely affect considerably less acreage. Almost all of these projects are on BLM or other federal land and, for this reason, either are or would be subject to NEPA and the NHPA, which contain cultural resource-protective requirements related to investigations, impact assessment, avoidance and mitigation. It is anticipated that projects in the analysis area not located on federal land would be subject to CEQA; therefore, any related impacts on cultural resources would be subject to cultural-resource-protective requirements based on state law to avoid or minimize these impacts.

Cumulative Impact Analysis

The proposed action could cause significant impacts on cultural resources during the proposed construction period or as a result of operation and maintenance or closure and decommissioning. Cumulative impacts would vary by alternative only to the degree to which direct and indirect impacts would vary by alternative. The Action Alternatives (Alternatives 1–3) are expected to have a greater cumulative impact on cultural resources than the No Action Alternatives (Alternatives 4–6). Impacted resources would still be permanently affected or destroyed, effectively removing them from the cultural resource base and cultural, historical, and archaeological landscape of the cumulative analysis area. Destruction or disturbance of DTC-related resources is of particular concern as a complete recordation of the area has not yet been completed, but likely present throughout the Chuckwalla Valley. Although the in-progress PA will require each individual resource to be evaluated and significant resources documented to professional standards as well as cultural and historical landscapes and historic districts, the permanent removal of these resources as a result of the Project will impact the feeling and human and traditional experience of the area’s prehistory and history, which likely could not be satisfactorily mitigated. As such, the No Action Alternatives have the potential for significant cumulative impacts on cultural resources under NEPA and CEQA.

Conclusion

Even if Project-specific impacts on cultural resources can be avoided or minimized through implementation of the PA and other applicant and mitigation measures, historic properties on a substantial amount of land still would be affected. Cumulative impacts would vary by alternative only to the degree the direct and indirect impacts would vary by alternative. The action alternatives would directly impact numerous cultural resources of varying significance and type. These alternatives would contribute to the hundreds of thousands of acres of current and foreseeable development projects considered in this cumulative analysis and detailed in Section 3.18. Although these cumulative projects are in various stages of approval and environmental documentation, they are expected to impact cultural resources similar in nature to the proposed Project. In particular, it is expected that sites related to the DTC-CAMA will be greatly affected by the cumulative projects. The proposed Project’s action alternatives would also contribute to the permanent loss of DTC-CAMA related resources and Chuckwalla Valley’s cultural resources in general and would degrade the cultural, historical, and archaeological landscape of the area. Given that at this time, the action alternatives would have unavoidable significant impacts, as described above, the action alternatives are expected to have significant, cumulative impacts on cultural resources under NEPA and CEQA. Even after compliance with the in-progress PA and completion of identified mitigation measures, cumulative impacts under NEPA and CEQA as a result of the DSSF Project may remain significant.

4.7 PALEONTOLOGICAL RESOURCES

4.7.1 Methodology for Analysis

Most impacts on paleontological resources are direct resulting 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 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.

4.7.2 CEQA Significance Criteria

The principal measure of effect on paleontological resources is the presence or potential presence of these resources in areas where ground disturbance would occur. It is the policy of the BLM, that potential impacts on scientifically significant paleontological resources be identified and proper mitigation be implemented (BLM 2008).

A project would have a significant paleontological resources impact if it would:

PR-1. Damage or destroy fossils or other unique paleontological resources;

PR-2. Directly or indirectly destroy a unique geologic feature associated with paleontological resources; or

PR-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 construction or by avoidance.

4.7.3 Alternative 1 – Proposed Action

Construction

<u>*Solar Farm Layout B*</u>

The physical disturbance of the geologic units present at the site during construction of the Solar Farm facilities could directly impact (i.e., damage or destroy) any fossils that might be present. Once the solar array plus supporting facilities were built, no additional direct impacts would be likely. No fossils have been cited as being found in the immediate vicinity of the SF-B site.

Only the Quaternary older alluvium has any potential to yield paleontological resources. The Quaternary older alluvium underlies the other Quaternary units at varying depths in the Project area. Excavation could disturb this unit. In the Project area, the Quaternary older alluvium has a low potential to contain significant fossil resources due to its lithology and depositional characteristics.

The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. Therefore, the potential for direct impacts on paleontological resources is low.

Indirect impacts include the potential for increased unauthorized collection of fossils and other paleontological resources resulting from increased numbers of people in the vicinity. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The potential for indirect impacts on paleontological resources is low.

Gen-Tie Line A-1

No fossils have been cited as being found in the immediate vicinity of the GT-A-1. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The physical disturbance of these units during construction of the Gen-Tie Line have low potential for direct impacts (i.e., damage or destroy any fossils) for any paleontological resources that might be along the route. Once the Gen-Tie Line was built and disturbance due to laydown and pulling activities was over, no additional direct impacts would be likely.

Red Bluff Substation A

The potential for direct or indirect impacts on paleontological resources as a result of constructing the Red Bluff Substation A would be low, as discussed for SF-B.

Summary of Construction Impacts

The construction of the Proposed Action Alternative, with SF-B, GT-A-1, and Substation A, would have low potential for direct impacts on vertebrate fossils and other scientifically valuable paleontological resources. Completion of the identified mitigation measures discussed below would further reduce the already low potential for impacts on paleontological resources.

Operation and Maintenance

Solar Farm Layout B

Indirect impacts that may occur during operation and maintenance of SF-B include the potential for increased unauthorized collection of fossils and other paleontological resources resulting from increased numbers of people in the vicinity. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The potential for indirect impacts on paleontological resources is low.

Gen-Tie Line A-1

No fossils have been cited as being found in the immediate vicinity of the GT-A-1. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. There is low potential for indirect impacts (unauthorized collection of fossils) for any paleontological resources that might be along the route.

Red Bluff Substation A

The potential for indirect impacts on paleontological resources as a result of operations and maintenance of the Red Bluff Substation A would be low as discussed for SF-B.

Summary of Operation and Maintenance Impacts

The operation and maintenance associated with the Proposed Action Alternative, with SF-B, GT-A-1, and Substation A, would have low potential for indirect impacts on vertebrate fossils and other scientifically valuable paleontological resources. Completion of identified mitigation measures discussed below would further reduce the already low potential for impacts on paleontological resources.

Decommissioning

Solar Farm Layout B

The physical disturbance of the geologic units present at the site during decommissioning of the Solar Farm facilities could directly impact (i.e., damage or destroy) any fossils that might be present. Once the solar array plus supporting facilities were removed, no additional direct impacts would be likely. No fossils have been cited as being found in the immediate vicinity of the SF-B site. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. Therefore, the potential for direct and indirect impacts on paleontological resources is low.

Gen-Tie Line A-1

No fossils have been cited as being found in the immediate vicinity of GT-A-1. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The physical disturbance of these units during decommissioning of the transmission line would have low potential for direct impacts (i.e., damage or destroy any fossils) or indirect impacts (unauthorized collection of fossils) for any paleontological resources that might be along the route. Once the Gen-Tie Line was decommissioned, no additional direct impacts would be likely.

Red Bluff Substation A

The potential for direct or indirect impacts on paleontological resources as a result of decommissioning the Red Bluff Substation A would be low as discussed for SF-B.

Summary of Decommissioning Impacts

The decommissioning of the facilities associated with the Proposed Action Alternative, with SF-B, GT-A-1, and Substation A, would have low potential for direct or indirect impacts on vertebrate fossils and other scientifically valuable paleontological resources. Completion of identified mitigation measures discussed below would further reduce the already low potential for impacts on paleontological resources.

Summary of Combined Impacts for Alternative 1

No fossils have been cited as being found in the immediate vicinity of the SF-B, GT-A-1, or Red Bluff Substation A. The geologic units present in the vicinity of these facilities have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. Therefore, the potential for direct and indirect impacts on paleontological resources is low. Completion of identified mitigation measures discussed below would further reduce the already low potential for impacts on paleontological resources.

Applicant Measures and Mitigation Measures

The geologic units exposed in the Project Area have low potential for paleontological resources. However, if there are any cohesive beds of fine grained sediments with characteristics of lake or low energy fluvial deposition lying unexposed beneath the surface, these beds could have a higher potential for paleontological resources. The following applicant measures have been developed to further reduce the already low potential to damage any paleontological resources that might be present.

AM-PR-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. The study will result in a map of the Project sites that would identify areas of high paleontological sensitivity and areas of lesser sensitivity. The study may also include a paleontology reconnaissance of the sites by professional paleontologists, if deemed necessary by the BLM after review of the initial site characterization.

Should the site characterization and or the site reconnaissance identify areas of high potential for paleontological resources, additional measures could be implemented, as determined by the BLM.

- A qualified paleontologist will develop a monitoring and mitigation plan prior to construction to mitigate adverse impacts on paleontological resources if excavation is to occur in an area of high paleontological sensitivity or expose new sediments with an unknown potential for paleontological sensitivity. The plan will include measures to be followed in the event that fossil materials are encountered during construction.
    - The monitoring and mitigation plan shall include a schedule and plan for monitoring earth-moving activities, and a provision that monitoring personnel have the authority to temporarily halt or divert excavation activities to allow removal of fossil specimens and recording of information on the location, orientation etc. associated with the collected specimen.
    - Worker awareness training will be implemented to ensure that the construction personnel understand the potential for fossil remains being uncovered and/or disturbed by earth moving activities; where such remains are most likely to be encountered during earth moving; and requirements and procedures to be followed in the event of suspected fossil discoveries. The awareness training may be given along with other sensitivity trainings (e.g., for biological resources) or incorporated into tailgate safety meetings.
    - The Applicant will have a paleontology monitor on site during construction when there are ground-disturbing activities in areas of identified high paleontological sensitivity.
    - Recovered fossils will be curated with a museum or other curation facility approved by the BLM.

CEQA Significance Determination

Solar Farm Layout B

No fossils have been cited as being found in the immediate vicinity of the SF-B site. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources.

The potential for damaging or destroying fossils or other unique paleontological resources is low (significance criteria PR-1). With the identified mitigation, no significant impacts would occur.

The potential for directly or indirectly destroying a unique geologic feature associated with paleontological resources is low (significance criteria PR-2). With the identified mitigation, impacts on paleontological resources would be reduced to a less than significant level..

The potential for causing the loss of valuable scientific information by disturbing the geology in which fossils are found is low (significance criteria PR-3). With the identified mitigation, impacts on paleontological resources would be reduced to a less than significant level.

Gen-Tie Line A-1

No fossils have been cited as being found in the immediate vicinity of GT-A-1. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources.

The potential for damaging or destroying fossils or other unique paleontological resources is low (significance criteria PR-1). With the identified mitigation, impacts on paleontological resources would be reduced to a less than significant level.

The potential for directly or indirectly destroying a unique geologic feature associated with paleontological resources is low (significance criteria PR-2). With the identified mitigation, impacts on paleontological resources would be reduced to a less than significant level.

The potential for causing the loss of valuable scientific information by disturbing the geology in which fossils are found is low (significance criteria PR-3). With the identified mitigation, impacts on paleontological resources would be reduced to a less than significant level.

Red Bluff Substation A

No fossils have been cited as being found in the immediate vicinity of the Red Bluff Substation A or related elements. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources.

The potential for damaging or destroying fossils or other unique paleontological resources is low (significance criteria PR-1). With the identified mitigation, impacts on paleontological resources would be reduced to a less than significant level.

The potential for directly or indirectly destroying a unique geologic feature associated with paleontological resources is low (significance criteria PR-2). With the identified mitigation, impacts on paleontological resources would be reduced to a less than significant level.

The potential for causing the loss of valuable scientific information by disturbing the geology in which fossils are found is low (significance criteria PR-3). With the identified mitigation, impacts on paleontological resources would be reduced to a less than significant level.

Unavoidable Adverse Effects

There would be no unavoidable significant impacts on paleontological resources under Alternative 1.

4.7.4 Alternative 2 – Alternate Action

Construction

Solar Farm Layout B

The impacts resulting from constructing SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

No fossils have been cited as being found in the immediate vicinity of GT-B-2. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The physical disturbance of these units during construction of the Gen-Tie Line have low potential for direct impacts (i.e., damage or destroy any fossils) for any paleontological resources that might be along the route. Once the Gen-Tie Line was built and disturbance due to laydown and pulling activities was over, no additional direct impacts would be likely.

Red Bluff Substation B

The potential for direct or indirect impacts on paleontological resources as a result of constructing the Red Bluff Substation B would be low as discussed for SF-B.

Summary of Construction Impacts

The construction of Alternative 2, with SF-B, GT-B-2 and Red Bluff Substation B, would have low potential for direct impacts on vertebrate fossils and other scientifically valuable paleontological resources. Completion of the identified mitigation measures discussed under Alternative 1 above would further reduce the already low potential for impacts on paleontological resources.

Operation and Maintenance

Solar Farm Layout B

The impacts resulting from operating and maintaining SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

No fossils have been cited as being found in the immediate vicinity of the GT-B-2. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. There is low potential for indirect impacts (unauthorized collection of fossils) for any paleontological resources that might be along the route.

Red Bluff Substation B

The potential for indirect impacts on paleontological resources as a result of operations and maintenance of the Red Bluff Substation B would be low as discussed for SF-B.

Summary of Operation and Maintenance Impacts

The operation and maintenance associated with Alternative 2, with Solar Farm Layout B, Gen-Tie Line B-2 and Red Bluff Substation B, would have low potential for indirect impacts on vertebrate fossils and other scientifically valuable paleontological resources. Completion of identified mitigation measures discussed under Alternative 1 above would further reduce the already low potential for impacts on paleontological resources.

Decommissioning

Solar Farm Layout B

The impacts resulting from decommissioning SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

No fossils have been cited as being found in the immediate vicinity of the GT-B-2. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The physical disturbance of these units during decommissioning of the transmission line would have low potential for direct impacts (i.e., damage or destroy any fossils) or indirect impacts (unauthorized collection of fossils) for any paleontological resources that might be along the route. Once the Gen-Tie Line is decommissioned, no additional direct impacts would be likely.

Red Bluff Substation B

The potential for direct or indirect impacts on paleontological resources as a result of decommissioning the Red Bluff Substation B would be low as discussed for SF-B.

Summary of Decommissioning Impacts

No fossils have been cited as being found in the immediate vicinity of the SF-B, GT-B-2, or Red Bluff Substation B. The geologic units present in the vicinity of these facilities have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. Therefore, the potential for direct and indirect impacts on paleontological resources is low. Mitigation measures to further reduce the already low potential for direct and indirect impacts are identified under Alternative 1 above.

Summary of Combined Impacts for Alternative 2

No fossils have been cited as being found in the immediate vicinity of the Solar Farm B, Gen-Tie Line B-2, or Red Bluff Substation B. The geologic units present in the vicinity of these facilities have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. Therefore, the potential for direct and indirect impacts on paleontological resources is low. Completion of identified mitigation measures for Alternative 1 above would further reduce the already low potential for impacts on paleontological resources.

Applicant Measures and Mitigation Measures

The applicant measures that have been developed to further reduce the already low potential to damage any paleontological resources that might be present are the same as those discussed under Alternative 1.

CEQA Significance Determination

Solar Farm Layout B

The CEQA significance determination for SF-B would be the same as that discussed under Alternative 1.

Gen-Tie Line B-2

No fossils have been cited as being found in the immediate vicinity of the GT-B-2 route. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The CEQA significance determination for GT-B-2 is the same as that discussed for GT-A-1 under Alternative 1.

Red Bluff Substation B

No fossils have been cited as being found in the immediate vicinity of the Red Bluff Substation B or related elements. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The CEQA significance determination for Red Bluff Substation B is the same as that discussed for Red Bluff Substation A under Alternative 1.

Unavoidable Adverse Effects

There would be no unavoidable significant impacts on paleontological resources under Alternative 2.

4.7.5 Alternative 3 – Reduced Footprint Alternative

Construction

Solar Farm Layout C

The physical disturbance of the geologic units present at the site during construction of the Solar Farm facilities could directly impact (i.e., damage or destroy) any fossils that might be present. Once the solar array plus supporting facilities were built, no additional direct impacts would be likely. No fossils have been cited as being found in the immediate vicinity of the SF-C site. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. Therefore, the potential for direct impacts on paleontological resources is low.

Indirect impacts include the potential for increased unauthorized collection of fossils and other paleontological resources resulting from increased numbers of people in the vicinity. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The potential for indirect impacts on paleontological resources is low.

Gen-Tie Line A-2

No fossils have been cited as being found in the immediate vicinity of GT-A-2. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The physical disturbance of these units during construction of the Gen-Tie Line have low potential for direct impacts (i.e., damage or destroy any fossils) for any paleontological resources that might be along the route. Once the Gen-Tie Line was built and disturbance due to laydown and pulling activities was over, no additional direct impacts would be likely. Mitigation measures to further reduce the already low potential for direct impacts are discussed under Alternative 1 above.

Red Bluff Substation A

The impacts resulting from constructing Red Bluff Substation A would be the same as those discussed under Alternative 1. The potential for direct impacts from the alternate Access Road 1 would also be low.

Summary of Construction Impacts

The construction of Alternative 3, with SF-C, GT-A-2, and Red Bluff Substation A, would have low potential for direct impacts on vertebrate fossils and other scientifically valuable paleontological resources. Completion of the identified mitigation measures discussed under Alternative 1 above would further reduce the already low potential for impacts on paleontological resources.

Operation and Maintenance

Solar Farm Layout C

Indirect impacts include the potential for increased unauthorized collection of fossils and other paleontological resources resulting from increased numbers of people in the vicinity. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The potential for indirect impacts on paleontological resources is low.

Gen-Tie Line A-2

No fossils have been cited as being found in the immediate vicinity of GT-A-2. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. There is low potential for indirect impacts (unauthorized collection of fossils) for any paleontological resources that might be along the route.

Red Bluff Substation A

The impacts resulting from operating and maintaining Red Bluff Substation A would be the same as those discussed under Alternative 1. The potential for indirect impacts from the use of the alternate Access Road 2 would be low.

Summary of Operation and Maintenance Impacts

The operation and maintenance associated with Alternative 3, with SF-C, GT-A-2, and Red Bluff Substation A, would have low potential for indirect impacts on vertebrate fossils and other scientifically valuable paleontological resources. Completion of identified mitigation measures discussed under Alternative 1 above would further reduce the already low potential for impacts on paleontological resources.

Decommissioning

Solar Farm Layout C

The physical disturbance of the geologic units present at the site during decommissioning of the solar farm facilities could directly impact (i.e., damage or destroy) any fossils that might be present. Once the solar array plus supporting facilities were removed, no additional direct impacts would be likely. No fossils have been cited as being found in the immediate vicinity of the SF-C site. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. Therefore, the potential for direct and indirect impacts on paleontological resources is low.

Gen-Tie Line A-2

No fossils have been cited as being found in the immediate vicinity of GT-A-2. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The physical disturbance of these units during decommissioning of the transmission line would have low potential for direct impacts (i.e., damage or destroy any fossils) or indirect impacts (unauthorized collection of fossils) for any paleontological resources that might be along the route. Once the Gen-Tie Line was decommissioned, no additional direct impacts would be likely.

Red Bluff Substation A

The impacts resulting from decommissioning Red Bluff Substation A would be the same as those discussed under Alternative 1. The potential for direct and indirect impacts associated with the decommissioning of the alternate Access Road 2 would be low.

Summary of Decommissioning Impacts

No fossils have been cited as being found in the immediate vicinity of SF-C, GT-A-2, or Red Bluff Substation A. The geologic units present in the vicinity of these facilities have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. Therefore, the potential for direct and indirect impacts on paleontological resources is low. Mitigation measures to further reduce the already low potential for direct and indirect impacts are identified under Alternative 1 above.

Summary of Combined Impacts for Alternative 3

No fossils have been cited as being found in the immediate vicinity of the Solar Farm Layout C, Gen-Tie Line A-2, or Red Bluff Substation A. The geologic units present in the vicinity of these facilities have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. Therefore, the potential for direct and indirect impacts on paleontological resources is low. Completion of identified mitigation measures for Alternative 1 above would further reduce the already low potential for impacts on paleontological resources.

Applicant Measures and Mitigation Measures

The applicant measures that have been developed to further reduce the already low potential to damage any paleontological resources that might be present are the same as those discussed under Alternative 1.

CEQA Significance Determination

Solar Farm Layout C

No fossils have been cited as being found in the immediate vicinity of SF-C. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The CEQA significance determination for SF-C is the same as that discussed for SF-B under Alternative 1.

Gen-Tie Line A-2

No fossils have been cited as being found in the immediate vicinity of the Gen-Tie Line A-2 route. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The CEQA significance determination for GT-A-2 is the same as that discussed for GT-A-1 under Alternative 1.

Red Bluff Substation A

The CEQA significance determination for Red Bluff Substation A would be the same as that discussed under Alternative 1.

Unavoidable Adverse Effects

There would be no unavoidable significant impacts on paleontological resources under Alternative 3.

4.7.6 Alternative 4 – No Issuance of a Right-of-Way Grant and No Land Use Plan Amendment (No Action)

Under this alternative, the proposed Project would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, no Solar Farm, Gen-Tie Line, or Substation 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 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. Because no ground disturbance would occur, direct impacts on potential paleontological resources from the construction, operation, and closure of the Proposed Project would not occur.

The no action alternative would not necessarily avoid potential direct impacts on paleontological resources from future renewable energy development. The land on which the Project is proposed would become available to other uses that are consistent with BLM's land use plan, including another solar project requiring a land use plan amendment. In addition, in the absence of this Project, other renewable energy projects may be constructed to meet State and Federal mandates, and those projects would have similar impacts in other locations.

4.7.7 Alternative 5 – No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Unsuitable for Solar Energy Development (No Action with Plan Amendment)

Under this alternative, the proposed Project would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the proposed Project site unavailable for future solar energy development. 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.

This No Action Alternative would not impact potential paleontological resources from the construction, operation, and closure of the proposed Project. Even though the CDCA Plan would be amended to make the area unavailable for future solar energy development, it is possible that the site could be developed with a different renewable energy technology or allowable other uses. As a result, the land could become available for other uses, which could result in direct impacts (i.e., surface disturbance) and indirect impacts (unauthorized collection of fossils) to potential paleontological resources in the Project area. In addition, in the absence of this Project, other renewable energy projects may be constructed to meet State and Federal mandates, and those projects would have similar impacts in other locations.

4.7.8 Alternative 6 – No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Suitable for Solar Development (No Action with Plan Amendment)

Under this alternative, the proposed Project would not be approved by the BLM and the BLM would amend the CDCA Plan to allow for other solar projects on the site. As a result, it is possible that another solar energy project could be constructed on the Project site.

Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. Construction and operation requirements for solar technologies vary; however, it is expected that all solar technologies require some grading and some infrastructure. Because it is expected that all solar technologies would require ground disturbance, the impacts on potential paleontological resources from the construction, operation, and closure of the alternative would likely be similar to the impacts under the proposed Project.

4.7.9 Cumulative Impacts

Geographic Extent

Impacts on paleontological resources result from physical disturbance or unauthorized collection. The geographic extent for cumulative impacts analysis is limited to the immediate region of the physical disturbance and change in pedestrian traffic associated with the DSSF and other projects.

Existing Cumulative Conditions

As discussed in Section 3.7, no fossils have been found within the immediate Project area. The geologic units present have low potential for paleontological resources. There are likely areas within the larger region of the California Desert that do contain paleontological resources.

Future Foreseeable Projects

Foreseeable Projects in the Project Area

Tables 3.18-2 and 3.18-3 list existing and reasonably foreseeable projects in the Project area. Only the electric transmission corridor project (DPV2) is in the same immediate area of the proposed Project. Surface disturbance and excavation associated with the construction of any transmission facilities could damage or destroy any vertebrate fossils and other scientifically valuable paleontological resources where present. This would result in a potentially significant impact. Completion of mitigation measures similar to those discussed for the proposed Project would likely reduce impacts to less than significant.

Any future expansion of the DSSF or location other renewable energy facilities in the immediate area of the DSSF, would also have low potential for impacts on paleontological resources. Completion of mitigation measures similar to those discussed for the DSSF would further reduce the already low potential for impacts.

Foreseeable Renewable Projects in the California Desert

Other projects within the California Desert do have to potential to impact paleontological resources, where those resources are present. Completion of project footprint specific surveys and assessment is necessary to design mitigation measures to reduce the potential for impacts.

Overall Conclusion

Cumulative impacts on paleontological resources from current projects, the proposed Project and foreseeable projects in the immediate area of the DSSF are low due to the low potential for the presence of paleontological resources. The cumulative impacts from other projects in the California Desert could be greater depending on the presence of paleontological resources and the mitigations measures taken as part of the implementation of the projects.

4.8 GEOLOGY AND SOIL RESOURCES

4.8.1 Methodology for Analysis

This section describes the geologic hazards and soil resources impacts that would occur with the implementation of the proposed Project or alternatives with respect to the impact criteria identified in Section 4.8.2. The analysis evaluates the impacts of construction, operation and maintenance and decommissioning of the Project.

The potential impact by geologic hazards was evaluated by assessing if there would be life/safety concerns or impacts to proper function of the Project as a result of a seismic event. The potential impact of loss of soils due to erosion by either water or wind was also evaluated. Available published resources including journal articles and maps available through the internet were reviewed. Also reviewed were technical reports prepared by the Applicant relevant to this resource and soils information provided by the National Resources Conservation Service (NRCS). This information was reviewed within the context of applicable federal, state and local regulations. Other important sources were government websites including databases the provided information on seismic hazards and faulting.

Table 4.8-1 provides an overview of total acreage of temporary and disturbed acreage to evaluate the amount of soils disturbed by the Project. The potential for seismic hazards remains unchanged by any of the alternatives proposed.

Table 4.8-1
Comparison of Action Alternative Features Relevant to Soil Resources

Project Feature	Alternative 1	Alternative 2	Alternative 3
Solar Farm Acreage	4,245	4,245	3,045
Gen-Tie Line Corridor	12.1miles by 160 feet[1]	10 miles by 160 feet[2]	10.5miles by 160 feet[3]
• Gen-Tie Line Permanent Disturbance Acreage	18	11	23
Red Bluff Substation Permanent	75	96.3	125.8
Total Disturbance Acreage	**4,391**	**4,347**	**3,196**

[1]Permanent disturbance occurs within a 12.1-mile by 160-foot-wide corridor, plus additional fan-shaped areas at corners.
[2]Permanent disturbance occurs within a 10-mile by 160-foot-wide corridor, plus additional fan-shaped areas at corners.
[3]Permanent disturbance occurs within a 10.5-mile by 160-foot-wide corridor, plus additional fan-shaped areas at corners.

4.8.2 CEQA Significance Criteria

The proposed Project would have a significant impact on geology and soil resources if it 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, the following 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 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 Project has been identified within an Alquist-Priolo Earthquake Fault Zone. There would be no impacts under this criterion from any component of the Project.

- 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 Project would require installation of a septic system for the Visitor's Center and the O&M Building. No soils within the Project Area have been identified as unsuitable for septic systems.

4.8.3 Alternative 1 – Proposed Action

Construction

Solar Farm Layout B

Construction of SF-B would require clearance (land clearing) of approximately 4,245 acres. Development of the Solar Farm site is described in Section 2.2.4 (Alternative 1). In addition to the solar array and internal roads, other permanent land uses include the O&M Facilities, On-Site Substation, and Visitor's Center. The SF-B 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. SF-B would be constructed approximately 7.2 miles from the Blue Cut Fault Zone, which is the closest active fault to the Project Area. Three unnamed faults, as identified in Section 3.8, are within the Project Study Area. These faults are buried, are poorly defined, and are not considered active or significant sources of seismic activity (Earth Systems Southwest 2010b).

Seismic and Geologic Hazards

The proposed construction of SF-B would expose people and/or structures to potential adverse effects, including the risk of loss, injury or death involving (i) rupture of a known earthquake fault; (ii) strong seismic ground shaking and (iii) seismic-related ground failure. The Project Area that includes SF-B is approximately 7.2 miles from the Blue Cut fault system and 35.9 miles from the Pinto Mountain fault zone. During construction, regional seismic hazards could expose site workers to seismic hazards. Implementing Mitigation GEO-1 would reduce these impacts. Implementation of design characteristics that comply with the 2007 California Building Code would reduce seismic impacts. Other geologic hazards, including liquefaction, seismically-induced subsidence, tsunamis, seiches and slope instability are considered generally essentially not applicable to the construction of SF-B. Liquefaction occurs when loosely packed sandy or silty soils that are saturated with water are shaken during an earthquake hard enough to lose strength and stiffness. The liquefied soil then can behave like a liquid. Groundwater levels at the 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. Groundwater would not be a factor in design or construction at this site. Section 4.17, Water Resources, has a comprehensive analysis of groundwater impacts associated with the Project. As stated in Section 3.8, the Project Study Area is within a Riverside County-designated "susceptible" subsidence zone (Riverside County 2003). Compaction of site soils during construction would prevent subsidence of site soils during a seismic event. The Project Area is neither within a coastal area nor near any large body of water and would therefore not be subject to tsunami or seiche.

Water and Wind Erosion of Soils

As stated in Section 3.8, relict or old or inactive dune deposits exist scattered throughout the Project Study Area. Due to the paucity of sand sources, the potential for wind-driven sand erosion of the SF-B is low (Kenney 2010). During construction, the potential soil erosion impacts from water are considered slight as water used as a dust suppressant would be managed such that all would remain within the construction area. No alterations of stormwater would occur that would increase soil erosion from water downgradient of SF-B. Best management practices identified in the Stormwater Pollution Prevention Plan, as identified under Mitigation GEO-2, should be implemented to ensure water used for dust suppression remains within the construction area.. Site grading would remove desert pavement found within the construction area and would increase the chances for windblown soils. Although there is a low potential for wind-driven erosion of soils associated with the site due to a lack of unconsolidated sand at the site (Kenney 2010), the potential is considered severe for construction-related surface disturbance of soils that would result in potential wind erosion. It is estimated that approximately 20 percent of the site has been determined to have various stages of desert pavement (weak, moderate, and strong). Moderate to strong pavement is indicative of complete to nearly complete rock clasts coverage on the surface, with minimal soil exposed. Weak desert pavement is where there is predominately more soil exposed than rock clasts (Earth Systems Southwest 2010). Implementing Mitigation GEO-2, which includes use of dust control palliatives, would reduce the impacts from wind erosion during construction. While a portion of the Project Study Area is in an area of active sand dune formation, the area proposed for SF-B is not. Inorganic elements are naturally found in soils at the site. No information was identified during the data collection for the analysis of soils within the Project Area that suggests inorganic elements are present in hazardous levels.

Gen-Tie Line A-1

Construction of GT-A-1 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 18 acres along the route, as described in Section 2.2.4 (Alternative 1).

Seismic and Geologic Hazards

Construction of GT-A-1 would have impacts similar to those identified for SF-B, as it has the potential to expose people and structures to seismic hazards. Implementation of Mitigation GEO-1 would reduce these impacts.

Wind and Water Erosion of Soils

Construction of GT-A-1 would have impacts similar to those identified for SF-B, as it has the potential for wind erosion impacts. Implementation of Mitigation GEO-2 would reduce impacts from wind erosion.

Red Bluff Substation A

Construction of Red Bluff Substation A includes the Substation itself and related elements. It would result in approximately 128 acres of permanent disturbance, including 75 acres for the Substation itself, as described in Section 2.2.4 (Alternative 1). Construction also includes the Desert Center Communication Center (not collocated with the Substation and requiring less than an acre of disturbance); an access road to the east of the substation from Chuckwalla Valley Road/Corn Springs Road (Access Road 2, requiring 19 acres of disturbance); an electrical distribution line (8 acres of disturbance); various tie-ins from the Substation to the Gen-Tie Line and to the regional transmission line (DPV1) adjacent to the Substation site (5 acres of disturbance); and 20 acres of associated drainage features. As Red Bluff Substation A is downslope of the Chuckwalla Mountains, surface runoff in the form of eroded channels traverses the site. Three of these channels would be needed to be altered to protect the Substation's southern exposure from flooding. Preliminary engineering suggests that a trapezoidal channel would be required to convey stormwater runoff around both sides of the Substation, discharging the flow through two existing culverts under I-10. Other surface flow at the south end of the Substation would be directed into the new trapezoidal channels by earthen berms placed along the southern edge of the Substation wall. Proposed drainage features would be properly engineered to prevent erosion of soils next to and downslope of the Substation.

Seismic and Geologic Hazards

The proposed construction of Red Bluff Substation A would expose people and/or structures to potential substantial adverse effects, including the risk of loss, injury or death involving (i) rupture of a known earthquake fault; (ii) strong seismic ground shaking and (iii) seismic-related ground failure. Implementing Mitigation GEO-3 would reduce these impacts. Other geologic hazards, including liquefaction, seismically-induced subsidence, tsunamis, seiches and slope instability are considered generally low to nil to the construction of Red Bluff Substation A. Groundwater levels at the site may fluctuate with precipitation, irrigation, drainage, regional pumping from wells, and site grading. Groundwater levels would be determined in the geotechnical study completed prior to construction of Red Bluff Substation A.

Water and Wind Erosion of Soils

Similar to construction for SF-B and GT-A-1, construction of the Red Bluff Substation A has the potential to increase the probability of water and wind erosion. Implementing Mitigation GEO-4 would reduce these impacts.

Summary of Construction Impacts

The construction of Alternative 1 with SF-B, GT-A-1 and Red Bluff Substation A, would increase the exposure of people and/or property to seismic hazards and increase the erosion of soils from wind and water. Implementation of identified Mitigations AM-GEO-1 through AM-GEO-4 would reduce these impacts.

Operation and Maintenance

Solar Farm Layout B

Seismic and Geologic Hazards

The proposed operation and maintenance of SF-B would expose people and/or structures to the same seismic hazards as described for SF-B during construction. Implementation of Mitigation AM-GEO-1 would reduce impacts from seismic and geologic hazards.

Water and Wind Erosion of Soils

During operation and maintenance, the potential soil erosion impacts from water and wind are considered slight. Implementing Mitigation AM-GEO-2 at a frequency detailed in an operations and maintenance plan as approved by the BLM would reduce any potential impacts from water and wind erosion.

Gen-Tie Line A-1

Seismic and Geologic Hazards

Operating and maintaining this transmission corridor would have impacts similar to those identified for SF-B, as it has the potential to expose people and/or structures to seismic hazards. Implementation of Mitigation AM-GEO-1 would reduce these impacts.

Wind and Water Erosion of Soils

During Operation and Maintenance, the potential soil erosion impacts from water and are considered slight. Implementing Mitigation Measure AM-GEO-2 at a frequency detailed in an operations and maintenance plan as approved by the BLM would reduce any potential impacts from water and wind erosion.

Red Bluff Substation A

Seismic and Geologic Hazards

The proposed operation and maintenance of Red Bluff Substation A would expose people and/or structures to the same seismic and geologic hazards as described for construction. Implementation of Mitigation AM-GEO-3 would reduce these impacts.

Water and Wind Erosion of Soils

The operation and maintenance of the Red Bluff Substation A does not have the potential to increase the probability of water and wind erosion. Implementing Mitigation Measure AM-GEO-4 would reduce these impacts.

Summary of Operation and Maintenance Impacts

The operation and maintenance of Alternative 1 with SF-B, GT-A-1 and Red Bluff Substation A, would increase the exposure of people and/or property to seismic and geologic hazards and increase the erosion of soils from wind and water. Implementation of Mitigations AM-GEO-1 through AM-GEO-4 would reduce these impacts.

Decommissioning

Solar Farm Layout B

Seismic and Geologic Hazards

The decommissioning of SF-B would have similar types of impacts as construction. Facilities would be removed and land reclaimed. Decommissioning of SF-B would expose people and/or structures to the same impacts as during construction. Implementing Mitigation AM-GEO-1 would reduce these impacts.

Water and Wind Erosion of Soils

During decommissioning of SF-B, the potential soil erosion impacts from water and wind are considered slight. Implementing Mitigation AM-GEO-2 at a frequency detailed in an operations and maintenance plan as approved by the BLM would reduce any potential impacts from water and wind erosion.

Gen-Tie Line A-1

Seismic and Geologic Hazards

The decommissioning of GT-A-1 would have similar types of impacts as construction. Facilities would be removed and land reclaimed. Decommissioning of GT-A-1 would expose people and/or structures to the same impacts as during construction. Implementing Mitigation AM-GEO-1 would reduce these impacts

Water and Wind Erosion of Soils

During decommissioning of GT-A-1, the potential soil erosion impacts from water and wind are considered slight. Implementing Mitigation AM-GEO-2 at a frequency detailed in an operations and maintenance plan as approved by the BLM would reduce any potential impacts from water and wind erosion.

Red Bluff Substation A

Decommissioning of Red Bluff Substation A includes the Substation itself and related elements. Prior to decommissioning of the SCE facilities or within a reasonable timeframe following termination of the BLM ROW grant, SCE would prepare a Decommissioning Plan for BLM review and approval. The Decommissioning Plan would address the decommissioning of SCE facilities from the permitted area, any requirements for habitat restoration and revegetation, if removal of SCE's facilities is required, activities and procedures for proper disposal of materials associated with the removal effort (if required), and compliance with applicable laws, regulations, and policies.

Seismic and Geologic Hazards

The decommissioning of the Red Bluff Substation A would increase the exposure of people and/or property to seismic hazards and increase the erosion of soils from wind and water. Implementation of identified Mitigation AM-GEO-3 would reduce these impacts.

Water and Wind Erosion of Soils

During decommissioning of Red Bluff Substation A, the potential soil erosion impacts from water and wind are considered slight. Implementing Mitigation Measure AM-GEO-4 would reduce any potential impacts from water and wind erosion.

Summary of Decommissioning Impacts

The decommissioning of Alternative 1 with SF-B, GT-A-1 and Red Bluff Substation A would increase the exposure of people and/or property to seismic hazards and increase the erosion of soils from wind and water. Implementation of Mitigations AM-GEO-1 through AM-GEO-4 would reduce these impacts. Once all facilities have been removed and soils have been sufficiently stabilized via reclamation, people and property would no longer be exposed to these hazards.

Summary of Combined Impacts for Alternative 1

The construction and decommissioning of Alternative 1 with SF-B, GT-A-1 and Red Bluff Substation A, would increase the exposure of people and/or property to seismic hazards and increase the erosion of soils from wind and water. The proposed construction and decommissioning of SF-B, GT-A-1, and Red Bluff Substation A would cause direct impacts by exposing people and structures to potential adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, and seismic-related ground failure. Completion of identified mitigation measures would reduce these impacts.

The proposed construction and decommissioning of SF-B, GT-A-1, and Red Bluff Substation A would cause direct impacts by increasing the potential for erosion of soils due to wind. Completion of identified mitigation measures would reduce these impacts.

The operation and maintenance of Alternative 1 with SF-B, GT-A-1 and Red Bluff Substation A, would increase the exposure of people and/or property to seismic hazards. The proposed operation and maintenance of SF-B, GT-A-1, and Red Bluff Substation A would cause direct impacts by exposing people and structures to potential adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, and seismic-related ground failure. Completion of identified mitigation measures would reduce these impacts.

Applicant Measures and Mitigation Measures

AM-GEO-1. The Applicant shall include, as part of the construction design plans for the Solar Farm and Gen-Tie Line, the mitigation measures provided in the Earth Systems Southwest (2010) geotechnical survey (Appendix F). These mitigations are summarized as follows and are subject to BLM approval. The Applicant shall be responsible for implementing these mitigations.

- A qualified professional as licensed by the State of California shall design permanent structures constructed on the site. The minimum seismic design shall comply with the 2007

California Building Code as specified in the geotechnical survey prepared for the Project (Appendix F);

- The site soils have been evaluated as having a very low expansion potential. Conventional foundations for shallow foundation used for the support of equipment shall be designed meet at least County of Riverside building code minimums or as specified by the Project structural engineer, whichever is more stringent; and
- Areas to receive permanent structures will require over-excavation and re-compaction to support proposed structures. Areas to receive piles used to support the arrays will include surficial compaction to enhance lateral stability.

AM-GEO-2. The Applicant shall implement the following mitigation measures to reduce impacts from wind and water erosion to soils:

- Obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (General Permit) Water Quality Order 2009-0009 Division of Water Quality (DWQ). As part of expected obligations under the General Permit, the Project proponent will prepare and implement a construction Storm Water Pollution Prevention Plan (SWPPP) prior to the commencement of soil disturbance activities associated with Project construction;
- 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. More details for dust suppression is provided in Section 4.2, Air Resources. Dust suppressants are materials that work by either agglomerating the fine particles, adhering/binding the surface particles together, or increasing the density of the surface material;
- Implement erosion control measures during construction, including stabilization of the heavily used construction entrance area, employing a concrete wash out area, as needed, and tire washes near the entrance to existing roadways; and
- Use silt fences for erosion control in the event of a storm event along neighboring properties, Power Line Road and along the main drainage to the east of the Solar Farm Site.

AM-GEO-3. SCE shall undertake the following mitigation measures as part of the Substation Project:

- Prior to final design of the Substation, a combined geotechnical engineering and engineering geology study shall be conducted by SCE to identify site-specific geologic conditions and potential geologic hazards in sufficient detail to support sound engineering. Appropriate mitigations for identified geological hazards will be identified in the geotechnical study.
- For new substation construction, specific requirements for seismic design will be followed based on the Institute of Electrical and Electronic Engineers' 693 "Recommended Practices for Seismic Design of Substations".
- New access roads, where required, will be designed to minimize ground disturbance during grading.

- Cut and fill slopes will be minimized by a combination of benching and following natural topography where feasible.
- Any disturbed areas associated with temporary construction will be returned to preconstruction conditions (to the extent feasible) after the completion of Project construction.

AM-GEO-4. SCE shall implement the following mitigation measures to reduce impacts from wind and water erosion to soils:

- Obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (General Permit) 2009-0009 Division of Water Quality (DWQ). As part of expected obligations under the General Permit, the Project proponent will prepare and implement a construction Storm Water Pollution Prevention Plan (SWPPP) prior to the commencement of soil disturbance activities associated with Project construction.
- Use nonhazardous dust suppressants approved by the BLM to suppress wind-blown dust generated at the site during construction. Dust suppressants are materials that work by either agglomerating the fine particles, adhering/binding the surface particles together, or increasing the density of the surface material.
- Implement erosion control measures during construction, such as stabilization of the heavily used construction entrance areas, employing a concrete wash out area, as needed, and tire washes near the entrance to existing roadways.

CEQA Significance Determination

Solar Farm Layout B

The construction, operation and maintenance, and decommission of SF-B in a region prone to seismic events could result in impacts on on-site workers and facilities (CEQA significance criteria GS-1, GS-2, GS-4, GS-5, GS-6, and GS-7). These adverse impacts can be localized to extensive, depending on the proximity and magnitude of the seismic event. 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 have the potential for significant impacts on SF-B. Due to the Project location, the potential for liquefaction, tsunamis, seiches, and slope instability resulting from a seismic event is not applicable. Soils in the Project Area have been identified as susceptible to subsidence during a seismic event. Implementation of AM-GEO-1 by the Applicant would reduce impacts from a seismic event to a less than significant level. Potential impacts from seismic events would be less than significant with mitigation. 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). No impact would occur.

Soils in the SF-B area are susceptible to significant wind erosion once soils crusts are disturbed. The soils in the Project Area are also susceptible to significant water erosion (CEQA significance criteria GS-4 and GS-8). The construction, operation and maintenance, and decommission of SF-B has the potential for causing soil erosion from wind. Use of a dust suppressant, such as water, during construction, operation and maintenance, and decommissioning would reduce impacts due to wind erosion. Implementation of a SWPPP on-site during construction, operation and maintenance, and decommissioning of SF-B would reduce the potential impact of overland flow of stormwater to erode soils both on- and off-site. Implementation of AM-GEO-2 by the Applicant would reduce impacts from wind and water erosion on soils to a less than significant level. Potential impacts from wind and water erosion on soils would be less than significant with mitigation.

Gen-Tie Line A-1

The construction, operation and maintenance, and decommission of GT-A-1 in a region prone to seismic events could result in impacts on on-site workers and facilities (CEQA significance criteria GS-1, GS-2, GS-4, GS-5, GS-6, and GS-7). These adverse impacts can be localized to extensive, depending on the proximity and magnitude of the seismic event. Adverse impacts, including loss or property or injury or death involving rupture of known earthquake faults, strong seismic ground shaking, and seismic-related ground failure have the potential for significant impacts on GT-A-1. Due to the Project location, the potential for liquefaction, tsunamis, seiches, and slope instability resulting from a seismic is not applicable to GT-A-1. Soils in the Project Area have been identified as susceptible to subsidence during a seismic event. Implementation of AM-GEO-1 by the Applicant would reduce impacts from a seismic event to a less than significant level. Potential impacts from seismic events would be less than significant with mitigation.

Soils in the GT-A-1 area are susceptible to wind erosion once soil crusts are disturbed. The soils in the Project Area are also susceptible to water erosion (CEQA significance criteria GS-4 and GS-8). The construction, operation and maintenance, and decommission of GT-A-1 has the potential for causing soil erosion from wind. Use of a dust suppressant, such as water, during construction, operation and maintenance, and decommissioning would reduce impacts from wind erosion. Implementation of a SWPPP on-site during construction, operation and maintenance, and decommissioning of GT-A-1 would reduce the potential impact of overland flow of stormwater to cause erosion of soils both on- and off-site. Implementation of AM-GEO-2 by the Applicant would reduce impacts from wind and water erosion on soils to a less than significant level. Potential impacts from wind and water erosion on soils would be less than significant with mitigation.

Red Bluff Substation A

The construction, operation and maintenance, and decommission of Red Bluff Substation A in a region prone to seismic events could result in impacts on on-site workers and facilities (CEQA significance criteria GS-1, GS-2, GS-4, GS-5, GS-6, and GS-7). These adverse impacts can be localized to extensive, depending on the proximity and magnitude of the seismic event. 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 have the potential for significant impacts on Red Bluff Substation A. Due to the Project location, the potential for liquefaction, tsunamis, seiches, and slope instability resulting from a seismic event is not applicable to Red Bluff Substation A. Soils in the Project Area have been identified as susceptible to subsidence during a seismic event. Implementation of AM-GEO-3 by SCE would reduce impacts from a seismic event to a less than significant level. Potential impacts from seismic events would be less than significant with mitigation.

Soils in the Red Bluff Substation A area are susceptible to wind erosion once soil crusts are disturbed. The soils in the Project Area are also susceptible to water erosion (CEQA significance criteria GS-4 and GS-8). The construction, operation and maintenance, and decommissioning of

Red Bluff Substation A has the potential for causing soil erosion from wind. Use of a dust suppressant, such as water, during construction, operation and maintenance, and decommissioning would reduce impacts from wind erosion. Implementation of a SWPPP on-site during construction, operation and maintenance, and decommissioning of Red Bluff Substation A would reduce the potential impact of overland flow of stormwater to cause erosion of soils both on-site and off-site. Implementation of AM-GEO-4 by the SCE would reduce impacts from wind and water erosion on soils to a less than significant level. Potential impacts from wind and water erosion on soils would be less than significant with mitigation.

Unavoidable Adverse Effects

Implementation of Alternative 1 would not result in any unavoidable adverse effects. Geologic hazards would be mitigated as specified earlier in this section. Adverse impacts from erosion of soils due to wind and water would also be mitigated.

4.8.4 Alternative 2 – Alternate Action

Construction

Solar Farm Layout B

The seismic and geologic hazard potential impacts and the impacts on soils from water and wind erosion resulting from constructing SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

Construction of GT-B-2 within the 10-mile by 160-foot-wide transmission corridor, plus additional fan-shaped areas at corners, would result in a permanent disturbance of 11 acres along the route as described in Section 2.2.4 (Alternative 2).

The seismic and geologic hazard potential impacts and impacts on soils from water and wind erosion resulting from constructing GT-B-2 would be the same as those discussed under Alternative 1.

Red Bluff Substation B

Construction of Red Bluff Substation B includes the Substation itself and related elements. It would result in approximately 91 acres of permanent disturbance, including 75 acres for the Substation itself, as described in Section 2.2.4 (Alternative 2). Construction of the Substation also includes construction of the Desert Center Communications Center (not co-located with the Substation and less than an acre of disturbance), an access road from Eagle Mountain Road that would result in an acre of disturbance, an electrical distribution line (an acre of disturbance), various tie-ins from the Substation to the Gen-Tie Line and to the regional transmission line (DPV1) next to the Substation site (2 acres of disturbance), and 11 acres of associated drainage features. The seismic and geologic hazard potential impacts and impacts on soils from water and wind erosion resulting from constructing Red Bluff Substation B would be the same as those discussed for Red Bluff Substation A under Alternative 1.

Summary of Construction Impacts

The construction impacts of Alternative 2 with SF-B, GT-B-2, and Red Bluff Substation B would be the same as those identified for Alternative 1.

Operation and Maintenance

Solar Farm Layout B

The seismic and geologic hazard potential impacts and impacts on soils from water and wind erosion resulting from operation and maintenance of SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

The seismic and geologic hazard potential impacts and impacts on soils from water and wind erosion resulting from operation and maintenance GT-B-2 would be the same as those discussed for GT-A-1 under Alternative 1.

Red Bluff Substation B

The seismic and geologic hazard potential impacts and impacts on soils from water and wind erosion resulting from operation and maintenance of Red Bluff Substation B would be the same as those discussed for Red Bluff Substation A under Alternative 1.

Summary of Operation and Maintenance Impacts

The operation and maintenance impacts of Alternative 2 with SF-B, GT-B-2 and Red Bluff Substation B would be the same as those identified for Alternative 1.

Decommissioning

Solar Farm Layout B

The seismic and geologic hazard potential impacts and impacts on soils from water and wind erosion resulting from decommissioning of SF-B would be the same as those discussed for GT-A-1 under Alternative 1.

Gen-Tie Line B-2

The seismic and geologic hazard potential impacts and impacts on soils from water and wind erosion resulting from decommissioning of GT-B-2 would be the same as those discussed for GT-A-1 under Alternative 1.

Red Bluff Substation B

The seismic and geologic hazard potential impacts and impacts on soils from water and wind erosion resulting from decommissioning of Red Bluff Substation B would be the same as those discussed for Red Bluff Substation A under Alternative 1.

Summary of Decommission Impacts

The decommissioning impacts of Alternative 2 with SF-B, GT-B-2, and Red Bluff Substation B would be the same as those identified for Alternative 1.

Summary of Combined Impacts for Alternative 2

The construction and decommissioning of Alternative 2 with SF-B, GT-B-2 and Red Bluff Substation B would increase the exposure of people and/or property to seismic hazards and increase the erosion of soils from wind and water. The operation and maintenance of Alternative 2 with SF-B, GT-B-2 and Red Bluff Substation B, would increase the exposure of people and/or property to seismic hazards. Completion of identified mitigation measures would reduce these impacts.

Applicant Measures and Mitigation Measures

Significance criteria and mitigations for Alternative 2 components (SF-B, GT-B-2 and Red Bluff Substation B) are the same as detailed for Alternative 1.

CEQA Significance Determination

Solar Farm Layout B

The CEQA significance criteria determination for SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

The CEQA significance criteria determination for GT-B-2 would be the same as those discussed under Alternative 1.

Red Bluff Substation B

The CEQA significance criteria determination for Red Bluff Substation B would be the same as those discussed under Alternative 1.

Unavoidable Adverse Effects

Implementation of Alternative 2 would not result in any unavoidable adverse effects. Geologic hazards would be mitigated as specified earlier in this section. Adverse impacts from erosion of soils due to wind and water would also be mitigated.

4.8.5 Alternative 3 – Reduced Footprint Alternative

Construction

Solar Farm Layout C

Construction of SF-C would require clearance (land clearing) of approximately 3,045 acres. Development of the Solar Farm site is described in Section 2.2.4 (Alternative 3). In addition to the solar array, other permanent land uses include the O&M Facilities, On-Site Substation, Visitor's Center, and internal roads would be constructed as part of this alternative.

Even though the footprint of the Solar Farm would be smaller under this alternative, the facilities needed would be the same for SF-B. Therefore, the seismic and geologic hazard potential impacts and impacts on soils from water and wind erosion resulting from construction of SF-C would be the same as those discussed under Alternative 1.

Gen-Tie Line A-2

Construction of GT-A-2 within the 10.5-mile by 160-foot-wide transmission corridor, plus additional fan-shaped areas at corners, would result in permanent disturbance of 23 acres along the route, as described in Section 2.2.4 (Alternative 3).

The seismic and geologic hazard potential impacts and impacts on soils from water and wind erosion resulting from construction of GT-A-2 would be the same as those discussed for GT-A-1 under Alternative 1.

Red Bluff Substation A

Construction of Red Bluff Substation A would be the same as described under Alternative 1 except that a different access road for the Substation would be used. Access to the Substation for this alternative would be from Kaiser Road via Aztec Road to the west (Access Road 1). Similar to the Access Road 2 under Alternative 1, improvements to this access road would require approximately 19 acres of disturbance. .

The seismic and geologic hazard potential impacts and impacts on soils from water and wind erosion resulting from construction of Red Bluff Substation A would be the same as those discussed under Alternative 1.

Summary of Construction Impacts

The construction impacts of Alternative 3 for the increase the exposure of people and/or property to seismic hazards and increase the erosion of soils from wind and water would be the same as those identified for Alternative 1.

Operation and Maintenance

Solar Farm Layout C

The seismic and geologic hazard potential impacts and impacts on soils from water and wind erosion resulting from operation and maintenance of SF-C would be the same as those discussed for SF-B under Alternative 1.

Gen-Tie Line A-2

The seismic and geologic hazard potential impacts and impacts on soils from water and wind erosion resulting from operation and maintenance of GT-A-2 would be the same as those discussed for GT-A-1 under Alternative 1.

Red Bluff Substation A

The seismic and geologic hazard potential impacts and impacts on soils from water and wind erosion resulting from operation and maintenance of Red Bluff Substation A would be the same as those discussed under Alternative 1.

Summary of Operation and Maintenance Impacts

The operation and maintenance impacts of Alternative 3 for SF-C, GT-A-2 and Red Bluff Substation A would be the same as those identified for Alternative 1.

Decommissioning

Solar Farm Layout C

The seismic and geologic hazard potential impacts and impacts on soils from water and wind erosion resulting from decommissioning of SF-C would be the same as those discussed for SF-B under Alternative 1.

Gen-Tie Line A-2

The seismic and geologic hazard potential impacts and impacts on soils from water and wind erosion resulting from decommissioning of GT-A-2 would be the same as those discussed for GT-A-1 under Alternative 1.

Red Bluff Substation A

The seismic and geologic hazard potential impacts and impacts on soils from water and wind erosion resulting from decommissioning of Red Bluff Substation A would be the same as those discussed under Alternative 1.

Summary of Decommission Impacts

The decommissioning impacts of Alternative 3 for the increase the exposure of people and/or property to seismic hazards and increase the erosion of soils from wind and water would be the same as those identified for Alternative 1.

Summary of Combined Impacts for Alternative 3

The construction and decommissioning of Alternative 3 with SF-C, GT-A-2 and Red Bluff Substation A would increase the exposure of people and/or property to seismic hazards and increase the erosion of soils from wind and water. The operation and maintenance of Alternative 3 with SF-C, GT-A-2 and Red Bluff Substation A, would increase the exposure of people and/or property to seismic hazards. Completion of identified mitigation measures would reduce these impacts.

Applicant Measures and Mitigation Measures Significance criteria and mitigations for Alternative 3 components (SF-C, GT-A-2 and Red Bluff Substation A) are the same as detailed for Alternative 1.

CEQA Significance Determination

Solar Farm Layout C

The CEQA significance criteria determination for SF-C would be the same as those discussed under Alternative 1.

Gen-Tie Line A-2

The CEQA significance criteria determination for GT-A-2 would be the same as those discussed under Alternative 1.

Red Bluff Substation A

The CEQA significance criteria determination for Red Bluff Substation A would be the same as those discussed under Alternative 1.

Unavoidable Adverse Effects

Implementation of Alternative 3 would not result in any unavoidable adverse effects. Geologic hazards would be mitigated as specified earlier in this section. Adverse impacts from erosion of soils due to wind and water would also be mitigated.

4.8.6 Alternative 4—No Issuance of a Right-of-Way Grant and No Land Use Plan Amendment (No Action)

Under this alternative, the proposed Desert Sunlight Solar Farm Project 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 the effects of earthquake-related ground shaking would not occur. Because no ground disturbance would occur, impacts on potential geologic, and soils resources from the construction, operation, and closure of the proposed Project would not occur. However, the land on which the Project is proposed would become available to other uses that are consistent with BLM's land use plan, including another solar project requiring a land use plan amendment. In addition, in the absence of this Project, other renewable energy projects may be constructed to meet state and federal mandates, and those projects would have similar impacts in other locations.

4.8.7 Alternative 5—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Unsuitable for Solar Energy Development (No Action with Plan Amendment)

Under this alternative, the proposed Desert Sunlight Solar Farm Project 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, 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 the CDCA Plan would be amended so no solar energy projects can be 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. Therefore, this No Action Alternative would not impact potential geologic or soils resources from the construction, operation, and closure of the proposed Project. However, in the absence of this Project, other solar energy projects may be constructed to meet state and federal mandates, and those projects would have similar impacts in other locations.

4.8.8 Alternative 6—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Suitable for Solar Development (No Action with Plan Amendment)

Under this alternative, the proposed Desert Sunlight Solar Farm Project would not be approved by the BLM and the BLM would amend the CDCA Plan to allow for other solar projects on the site. As a result, it is possible that another solar energy project could be constructed on the Project site.

Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. Construction and operation requirements for solar technologies vary; however, it is expected that all solar technologies require some grading and some infrastructure. The effects of strong ground shaking on the Project structures would need to be mitigated, to the extent practical, through structural designs required by appropriate building codes and standards as with the proposed Project. Because it is expected that all solar technologies would require ground disturbance, the impacts on potential geologic resources from the construction, operation, and closure of the alternative would likely be similar to under the proposed Project.

4.8.9 Cumulative Impacts

Geographic Scope of Cumulative Impacts Analysis for Geology and Soils

The geographic area considered for cumulative impacts to all three alternatives for geology consists of the seismically active Mojave Desert geomorphic province. Soils with the potential for Prime Farmland designation could occur within areas within the region with the potential for arable land, or lands that have qualities such as irrigation water and richness in nutrients.

The geographic area considered for cumulative impacts to all three alternatives for erosion of soils by wind consists of the Mojave Desert Air Basin. The geographic area for erosion of soils by water consists of the Chuckwalla hydrologic unit watershed as overland stormwater flow could erode soils from the proposed action and impact off-site areas.

Effects of Past, Present and Foreseeable Projects

Past, present and future alternative energy projects in the Mojave Desert geomorphic province would all be susceptible to the same risk from seismic events. As such, appropriate state- and local-required engineering would reduce the risks for those projects to a less than significant level.

It is possible that other projects and other energy projects proposed in the region may seek to be sited on former agricultural lands that have been classified as prime farm lands. This could cause a cumulative impact to this resource. The proposed Project would not add to this potential cumulative impact.

The proposed Project and other projects and other alternative energy proposed in the region have the potential for cumulative impacts on soil erosion from wind and water during construction and decommissioning. Wind and water erosion of soils impacts are less likely during operation and maintenance of any project found within the region. Although with mitigation, the proposed Project has a less than significant impact to soil erosion from wind and water; it has the potential to contribute to cumulative impacts on soil erosion from incremental losses. Less than significant impacts from other foreseeable future projects could incrementally contribute to loss of soils from wind and water erosion, causing a cumulative impact.

Overall Conclusion

The potential for cumulative impacts on the proposed Project from geologic hazards is not significant due to the anticipated engineering that would include state and local requirements to reduce the impacts of such hazards.

Construction and decommissioning of the proposed action could contribute to a incremental cumulative impact on soil resources. Operation and maintenance would not likely contribute to a cumulative impact on soil resources. Impacts on soils from wind erosion would be mitigated to a less than significant level.

4.9 LANDS AND REALTY

4.9.1 Methodology for Analysis

This section discusses the lands and realty impacts that would occur with implementation of the Proposed Action or alternatives with respect to the impact criteria identified in Section 4.9.2. Effects may occur from conflicts with existing or authorized land uses; conflicts with applicable land use plans, policies, or regulations; or conversion of farmland, forest land, or timberland. The effects of the Project were compared to established CEQA significance criteria.

4.9.2 CEQA Significance Criteria

Under CEQA, the proposed Project would have a significant impact on lands and realty if it 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 or natural community conservation plan;

LU-4. Conflict with existing zoning for agricultural use, and/or a Williamson Act contract;

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, the following 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 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 would not divide this development, although the Solar Farm alternatives would be adjacent to it.

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps pursuant to the Farmland Mapping and Monitoring Program 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 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 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 would not be located on any forest land; therefore, there would be no impact.

4.9.3 Alternative 1 – Proposed Action

Construction

Solar Farm Layout B

Existing and Planned Land Uses

Construction of SF-B would develop 4,245 acres of generally undeveloped multiple-use BLM-administered land as a restricted access Solar Farm. SF-B would overlap the following existing authorized uses described in Table 3.9-2:

- 230-kV transmission line owned by MWD;
- 33-kV transmission line owned by MWD;
- Power Line Road;
- Kaiser Steel Road, owned by Kaiser Steel;
- Transmission line owned by Kaiser Steel; and
- FERC easement for Eagle Mountain Pumped Storage Project;

SF-B has been designed to avoid impacts to the transmission lines that parallel Power Line Road and Kaiser Steel Road. Portions of Kaiser Steel Road would be closed. The transmission line that parallels Kaiser Steel Road and the FERC easement could require modification. Sunlight shall implement AM-LAND-2 to minimize potential impacts to existing uses.

Applicable Land Use Plans, Policies, or Regulations

Construction of SF-B would be entirely on BLM-administered land designated as Multiple-Use Class M (Moderate Use) by the CDCA Plan. Solar energy generation facilities may be allowed on Class M land after NEPA requirements are met and a Plan Amendment is approved.

Habitat Conservation Areas

The NECO Plan serves as the HCP for the Project area and designates the Chuckwalla DWMA and CHU and the Alligator Rock ACEC as habitat conservation areas. SF-B would not overlap and therefore would not impact these habitat conservation areas.

Agriculture

SF-B would not impact any agricultural lands. The nearest agricultural lands are approximately two miles south of SF-B.

Gen-Tie Line A-1

Existing and Planned Land Uses

Construction of GT-A-1 would develop 18 acres of generally undeveloped multiple-use BLM-administered land as a transmission line corridor. GT-A-1 would overlap the following existing authorized uses described in Table 3.9-3:

- MWD ROW for canals and ditches;
- Two SCE transmission lines;
- I-10, which is under the jurisdiction of Caltrans;
- Underground telephone cable owned by Sprint;
- 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.

Impacts from road crossings would be temporary and limited to short-term traffic disturbance during wire stringing. Towers would be sited to avoid impacts to the MWD ROW, the telephone cable, and the water pipeline and well. The transmission lines could require modification. Sunlight shall implement AM-LAND-2 to minimize potential impacts to existing uses.

Applicable Land Use Plans, Policies, or Regulations

The majority of GT-A-1 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 GT-A-1 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.

The portion of GT-A-1 southeast of SR 177 (approximately five miles) would be within designated utility corridor K.

A large portion of GT-A-1 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 private parcel. No development is currently evident on either of these parcels (Google Earth 2010). 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. If necessary, the Applicant will apply to the County of Riverside Transportation Department for an encroachment permit for GT-A-1 in accordance with Chapter 17.284 of the Riverside County Code.

A 0.6-mile portion of GT-A-1 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. GT-A-1 would comport with the development policies of the OS-RUR designation because they would be constructed with building materials such as steel poles that rust to blend into the natural landscape and they 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.

Habitat Conservation Areas

A large portion of GT-A-1 would traverse the Chuckwalla DWMA and CHU, which would result in temporary and permanent land disturbance. The NECO plan allows for development in one percent of the DWMA. The DWMA is approximately 620,130 acres in size; therefore, the development of GT-A-1 would represent a negligible percentage (0.00006%) of the allowable development within the DWMA. The exact acreage disturbed and a discussion of impacts to habitat and wildlife are described in Section 4.4, Wildlife.

Agriculture

GT-A-1 would not impact any agricultural lands. The nearest agricultural lands are approximately one mile north of GT-A-1.

Red Bluff Substation A

Existing and Planned Land Uses

Construction of Red Bluff Substation A would convert 75 acres of multiple-use BLM-administered land to an electrical substation and an additional 47 acres for associated facilities (e.g., distribution system, drainage improvements, Telecom Site and tower, and Access Road 1). When Red Bluff Substation is referred to in this section, the term refers to the substation itself and all associated facilities, unless otherwise specified. The eastern portion of the Red Bluff Substation A site would overlap a 15-foot-wide ROW for a La Sierra University access road (Figure 3.15-7).

Applicable Land Use Plans, Policies, or Regulations

Construction of Red Bluff Substation A would be primarily on BLM-administered land designated as Multiple-Use Class L (Limited Use) by the CDCA Plan. The exception would be the less than one-acre Telecom Site, which would be on land designated Class M (Moderate Use). 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. Red Bluff Substation A would be within utility corridor K.

Habitat Conservation Areas

Red Bluff Substation A would be located within the Chuckwalla DWMA and CHU. Access Road 1 also crosses the Chuckwalla DWMA and CHU. Access Road 1 would utilize existing roads and an existing pipeline patrol road that would be improved as part of the Project. Temporary and permanent land disturbance would result in these areas. The NECO plan allows for development in one percent of the DWMA. The DWMA is approximately 620,130 acres in size; therefore, the development of GT-A-1 would represent a negligible percentage (0.0002%) of the allowable development within the DWMA. The exact acreage disturbed and a discussion of impacts to habitat and wildlife are described in Section 4.4, Wildlife.

Agriculture

Red Bluff Substation A would not impact any agricultural lands. The nearest agricultural lands to the substation are approximately 3.5 miles northwest. The nearest agricultural lands to the Telecom Site are approximately one mile west.

Summary of Construction Impacts

The construction of Alternative 1 with SF-B, GT-A-1 and Red Bluff Substation A, would develop 4,391 acres, primarily consisting of generally undeveloped BLM-administered land, including 0.0003% of the Chuckwalla DWMA and CHU, and including a small amount of MWD and private land, precluding other uses of these lands. Additional acreage would temporarily be disturbed during construction for access roads, staging areas, and similar purposes necessary for construction to take place. All portions of the development that would be on BLM-administered land would be compatible with the CDCA Plan.

SF-B would overlap three transmission lines, two roads, and a FERC easement. SF-B has been designed to avoid impacts to the transmission lines that parallel Power Line Road and Kaiser Steel Road. Portions of Kaiser Steel Road would be closed. The transmission line that parallels Kaiser Steel Road and the FERC easement could require modification.

GT-A-1 would disturb 0.00006%of the Chuckwalla DWMA and CHU, and overlap an MWD ROW, three major roads, a private access road, two SCE transmission lines, an underground telephone cable, and a water pipeline and well. Impacts from road crossings would be temporary and limited to short-term traffic disturbance during wire stringing. Towers would be sited to avoid impacts to the MWD ROW, the telephone cable, and the water pipeline and well. The transmission lines could require modification.

Red Bluff Substation A would disturb 0.0002% of the Chuckwalla DWMA and CHU, and overlap a La Sierra University access road ROW.

Sunlight shall implement AM-LAND-2 to minimize potential impacts to existing uses.

Operation and Maintenance

Solar Farm Layout B

The impacts resulting from operating and maintaining SF-B would be reduced compared to those discussed under construction of SF-B because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance, resulting in a reduced impact footprint.

Gen-Tie Line A-1

The impacts resulting from operating and maintaining GT-A-1 would be reduced compared to those discussed under construction of GT-A-1 because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance, resulting in a reduced impact footprint.

Red Bluff Substation A

The impacts resulting from operating and maintaining Red Bluff Substation A would be reduced compared to those discussed under construction of Red Bluff Substation A because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance, resulting in a reduced impact footprint.

Summary of Operation and Maintenance Impacts

The operation and maintenance of Alternative 1 with SF-B, GT-A-1 and Red Bluff Substation A, would use 4,391 acres, primarily consisting of BLM-administered land, including 0.0003% of the Chuckwalla DWMA and CHU, and including a small amount of MWD and private land, precluding other uses of these lands. This footprint would be somewhat reduced compared to construction because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance. All portions of the development that would be on BLM-administered land would be compatible with the CDCA Plan. The Project components would continue to overlap the existing uses (including roads and transmission lines) described under construction impacts.

Decommissioning

Solar Farm Layout B

Existing and Planned Land Uses

Decommissioning of SF-B would temporarily impact a footprint similar to that of construction. When decommissioning was complete, it would result in restoration of 4,245 acres of multiple-use BLM-administered land, making the land available for other uses. Decommissioning would require coordination similar to that performed during construction where SF-B overlapped existing uses (including roads and transmission lines); however, once decommissioning was completed, SF-B 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 SF-B 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 SF-B would not impact 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.

Agriculture

Decommissioning SF-B would not impact any agricultural lands as the site does not currently overlap agricultural lands nor would any agricultural lands be designated at the site while it would be in use as a solar farm.

Gen-Tie Line A-1

Existing and Planned Land Uses

Decommissioning of GT-A-1 would temporarily impact a footprint similar to that of construction. When decommissioning was complete, it would result in restoration of 18 acres of land, making the land available for other uses. Decommissioning would temporarily disturb approximately 76.7 acres of land (based on construction estimates). Decommissioning would require coordination similar to that performed during construction where GT-A-1 overlapped existing uses (including roads and transmission lines); however, once decommissioning was completed, GT-A-1 would no longer overlap these uses.

Habitat Conservation Areas

Decommissioning GT-A-1 would initially result in additional disturbance to the Chuckwalla DWMA and CHU where GT-A-1 overlaps these habitat conservation areas. However, the amount of land disturbed would be much less than the one 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 impacts resulting from decommissioning GT-A-1 (i.e., impacts to land use plans, policies or regulations, and agricultural lands) would be the same as those described under decommissioning of SF-B.

Red Bluff Substation A

Existing and Planned Land Uses

Decommissioning of Red Bluff Substation A would temporarily impact a footprint similar to that of construction. When decommissioning was complete, it would result in restoration of 75 acres of multiple-use BLM-administered land, making the land available for other uses. Decommissioning would require coordination similar to that performed during construction where Red Bluff Substation A overlapped existing uses (including roads and transmission lines); however, once decommissioning was completed, Red Bluff Substation A would no longer overlap these uses.

Habitat Conservation Areas

Decommissioning RBS-A would initially result in additional disturbance to the Chuckwalla DWMA and CHU. However, the amount of land disturbed would be much less than the one percent allowed by the NECO Plan, and the disturbance would be limited to the duration of decommissioning activities. When decommissioning was complete, this land would be restored and could once again be used as a habitat conservation area.

The other impacts resulting from decommissioning Red Bluff Substation A (i.e., impacts to land use plans, policies or regulations, and agricultural lands) would be the same as those described under decommissioning of SF-B.

Summary of Decommissioning Impacts

The decommissioning of Alternative 1 with SF-B, GT-A-1 and Red Bluff Substation A, would make 4,391 acres, primarily consisting of BLM-administered land, including approximately 0.0003% of the Chuckwalla DWMA and CHU, and including a small amount of MWD and private land available for other uses. Additional acreage would temporarily be disturbed during decommissioning for access roads, staging areas, and similar purposes necessary for decommissioning to take place. A decommissioning plan would be created to ensure that decommissioning was conducted in accordance with then-current land use plans, policies, or regulations. Decommissioning would require coordination similar to that performed during construction where the Project components overlapped existing uses (including roads and transmission lines); however, once decommissioning was completed, the Project would no longer overlap these uses.

Summary of Combined Impacts for Alternative 1

The operation and maintenance of Alternative 1 with SF-B, GT-A-1 and Red Bluff Substation A, would convert 4,391 acres of BLM-administered land, including 0.0003% of the Chuckwalla DWMA and CHU, as well as a small amount of MWD and private land to use for electric power generation and distribution, precluding other uses of these lands. Additional acreage would temporarily be disturbed during construction for access roads, staging areas, and similar purposes necessary for construction to take place. All portions of the development that would be on BLM-administered land would be compatible with the CDCA Plan.

Alternative 1 would overlap the following components and might require temporary disturbance or permanent modification (Sunlight shall implement AM-LAND-2 to minimize potential impacts to existing uses):

- SF-B: Portions of Kaiser Steel Road would be closed. The transmission line that parallels Kaiser Steel Road and the FERC easement could require modification.
- GT-A-1: Impacts from road crossings would be temporary and limited to short-term traffic disturbance during wire stringing. Towers would be sited to avoid impacts to the MWD ROW, the telephone cable, and the water pipeline and well; however, temporary disturbance could occur. The transmission lines could require modification. Approximately 0.00006% of the Chuckwalla DWMA and CHU would be temporarily or permanently disturbed.
- Red Bluff Substation A: Modification of the La Sierra University access road ROW could be required. Approximately 0.0002% of the Chuckwalla DWMA and CHU would be disturbed.

The decommissioning of Alternative 1 would temporarily impact a footprint similar to that of construction. When decommissioning was complete, it would make 4,391 acres, primarily consisting of BLM-administered land, including 0.0003% of the Chuckwalla DWMA and CHU, as well as a small amount of private and MWD land, available for other uses. Decommissioning would require coordination similar to that performed during construction where the Project components overlapped existing uses (including roads and transmission lines); however, once decommissioning was completed, the Project would no longer overlap these uses.

Applicant Measures and Mitigation Measures

The following applicant measures (AMs) shall be implemented to reduce adverse impacts. No mitigation measures would be required to reduce impacts to less than significant. .

AM-LAND-1. 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.

AM-LAND-2. The Project shall be designed to minimize disturbance or modification of existing uses such as transmission lines, pipelines, and underground cables. If disturbance or modification of existing uses were necessary, Sunlight shall coordinate with the owners to determine an acceptable solution. Sunlight shall fund any necessary avoidance measures or modifications.

CEQA Significance Determination

Solar Farm Layout B

Construction impacts would be less than significant for criterion LU-1. SF-B would develop 4,245 of 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 and no specific planned land uses have been identified, impacts would be less than significant. SF-B would overlap several existing uses including roads and transmission lines; however, by implementing AM-LAND-1 and AM-LAND-2, impacts would be further reduced. There would be no impact for criterion LU-3 because SF-B would not overlap any habitat conservation areas. There would be no impact under criteria LU-2, LU-4 and LU-5. With regards to LU-2, there would be no impact because SF-B would be compatible with the relevant land use classifications. With regards to LU-4 and LU-5, there would be no impact because SF-B would not overlap any agricultural lands.

Operation and maintenance impacts would be reduced compared to those described under construction impacts because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance, resulting in a reduced impact footprint.

Decommissioning impacts are not applicable to criteria 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 as SF-B. 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 in the area, nor would any be designated while the site was in use as SF-B. 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 SF-B would not overlap any habitat conservation areas.

Gen-Tie Line A-1

Construction impacts would be less than significant for criterion LU-1. There would be no impact under criteria LU-2, LU-4, and LU-5. With regards to LU-1, although development of GT-A-1 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, GT-A-1 would overlap several existing uses including roads and transmission lines; however, by implementing AM-LAND-1 and AM-LAND-2, impacts would be further reduced. With regards to LU-2, there would be no impact because GT-A-1 would be compatible with the relevant land use classifications. With regards to LU-4 and LU-5, there would be no impact because GT-A-1 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 GT-A-1, the lands disturbed would be much less than the one percent allowed by the NECO Plan.

Operation and maintenance impacts would be reduced compared to those described under construction impacts because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance, resulting in a reduced impact footprint.

Decommissioning impacts are not applicable to criteria LU-1, LU-4, and LU-5. There would be no impact under LU-2. The reasons for these determinations are the same as those described under decommissioning of SF-B. 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.

Red Bluff Substation A

Construction impacts would be less than significant for criterion LU-1. There would be no impact under criteria LU-2, LU-4, and LU-5. With regards to LU-1, although development of Red Bluff Substation A 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, Red Bluff Substation A would overlap a La Sierra University access road ROW; however, by implementing AM-LAND-1 and AM-LAND-2, impacts would be further reduced. With regards to LU-2, there would be no impact because Red Bluff Substation A would be compatible with the relevant land use classification. With regards to LU-4 and LU-5, there would be no impact because Red Bluff Substation A 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 Red Bluff Substation A, the lands disturbed would be much less than the one percent allowed by the NECO Plan.

Operation and maintenance impacts would be reduced compared to those described under construction impacts because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance, resulting in a reduced impact footprint.

Decommissioning impacts are not applicable to criteria LU-1, LU-4, and LU-5. There would be no impact under LU-2. The reasons for these determinations are the same as those described under decommissioning of SF-B. 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.

Unavoidable Adverse Effects

No unavoidable adverse impacts would result from implementation of Alternative 1.

4.9.4 Alternative 2 – Alternate Action

Construction

<u>*Solar Farm Layout B*</u>

The impacts resulting from constructing SF-B would be the same as those discussed under Alternative 1.

<u>*Gen-Tie Line B-2*</u>

Existing and Planned Land Uses

Construction of GT-B-2 would develop 11 acres of generally undeveloped multiple-use BLM-administered land as a transmission line corridor. GT-B-2 would overlap the following existing authorized uses described in Table 3.9-3, as would GT-A-1:

- MWD ROW for canals and ditches;
- Two SCE transmission lines;
- I-10, which is under the jurisdiction of Caltrans;
- Underground telephone cable owned by Sprint; and
- Kaiser Road, which is under the jurisdiction of Riverside County.

In addition, GT-B-2 would overlap the following existing authorized uses described in Table 3.9-3:

- Caltrans drainage easements;
- Three Southern California Gas Company underground oil and gas pipelines; and
- Eagle Mountain Road, which is under the jurisdiction of Riverside County.

Impacts from road crossings would be temporary and limited to short-term traffic disturbance during wire stringing. Towers would be sited to avoid permanent impacts to the MWD ROW, the drainage easements, the underground telephone cable, and the oil and gas pipelines; however, temporary disturbance could occur. The transmission lines could require modification. Sunlight shall implement AM-LAND-2 to minimize potential impacts to existing uses.

Applicable Land Use Plans, Policies, or Regulations

Construction of GT-B-2 would be on BLM-administered land designated as Multiple-Use Class M (Moderate Use) and Class L (Limited Use) by the CDCA Plan. 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.

Approximately 1.5 miles of GT-B-2 would be within designated utility corridor E and approximately one mile would be within designated utility corridor K.

Like GT-A-1, much of GT-B-2 would be located within or adjacent to an existing Riverside County ROW where the underlying management is BLM, except for one parcel of land owned by MWD and one private parcel. No development is currently evident on either of these parcels (Google Earth 2010). 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. If necessary, the Applicant will apply to the County of Riverside Transportation Department for an encroachment permit for GT-B-2 in accordance with Chapter 17.284 of the Riverside County Code.

A 0.6-mile portion of GT-B-2 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. GT-A-1 would comport with the development policies of the OS-RUR designation because they would be constructed with building materials such as steel poles that rust to blend into the natural landscape and they 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.

Habitat Conservation Areas

The majority of GT-B-2 would traverse the Chuckwalla DWMA and CHU; however, the total acreage disturbed represents much less than the one percent that may be developed according to the NECO Plan. Temporary and permanent impacts to habitat and desert wildlife would occur as described in Section 4.4, Wildlife.

Agriculture

GT-B-2 would not impact any agricultural lands. The nearest agricultural lands are approximately three miles east of GT-B-2.

Red Bluff Substation B

The Telecom Site that is a component of both Red Bluff Substation A and B would be located in the same place regardless of which Alternative is chosen. Impacts associated with the Telecom Site would be the same as described under Alternative 1. Impacts from the remainder of Red Bluff Substation B are described below.

Existing and Planned Land Uses

Construction of Red Bluff Substation B would convert 75 acres of private land zoned W-2-10 to an electrical substation and associated facilities (e.g., distribution system, drainage improvements, and access road). There are no existing or known planned uses of this land. SCE would acquire the private land prior to development. SCE is able to exercise imminent domain to acquire property. Red Bluff Substation B would not overlap any existing authorized uses.

Applicable Land Use Plans, Policies, or Regulations

Construction of Red Bluff Substation B and associated elements would be entirely on private land (with the exception of the Telecom Site). The Riverside County General Plan is the applicable land use plan for this land. The Riverside County General Plan classifies this land as OS-RUR (Open Space, Rural) and has zoned it as W-2-10 (Controlled Development Zone). According to the General Plan, "structures and the pertinent facilities necessary and incidental to the development and transmission of electrical power and gas such as hydroelectric power plants, booster or conversion plants, transmission lines, pipe lines and the like" are allowed on land zoned W-2-10 by approval or by permit (Riverside County 2009). SCE would acquire the private land prior to development.

Habitat Conservation Areas

Although the Red Bluff Substation B site is adjacent to or near the Chuckwalla DWMA and CHU and Alligator Rock ACEC on all sides, it would be on private land that is not part of these habitat conservation areas.

Agriculture

Red Bluff Substation B would not impact any agricultural lands. The nearest agricultural lands are approximately 4.5 miles northeast of Red Bluff Substation B.

Summary of Construction Impacts

The construction of Alternative 2 with SF-B, GT-B-2 and Red Bluff Substation B, would develop 4,347 acres of generally undeveloped BLM-administered land, including less than one percent of the Chuckwalla DWMA and CHU, as well as a small amount of MWD and private land, precluding other uses of these lands. Additional acreage would temporarily be disturbed during construction for access roads, staging areas, and similar purposes necessary for construction to take place. All portions of the development that would be on BLM-administered land would be compatible with the CDCA Plan.

SF-B would overlap three transmission lines, two roads, and a FERC easement. Impacts would be the same as those described under Alternative 1.

GT-B-2 would overlap less than one percent of the Chuckwalla DWMA and CHU, an MWD ROW, three roads, two SCE transmission lines, an underground telephone cable, three underground oil and gas pipelines, and drainage easements. Impacts from road crossings would be temporary and limited to short-term traffic disturbance during wire stringing. Towers would be sited to avoid permanent impacts to the MWD ROW, the drainage easements, the underground telephone cable, and the oil and gas pipelines; however, temporary disturbance could occur. The transmission lines could require modification. Sunlight shall implement AM-LAND-2 to minimize potential impacts to existing uses. The majority of GT-B-2 would not be within a designated utility corridor.

The construction of Alternative 2 would also develop 75 acres of undeveloped privately-owned land as Red Bluff Substation B. The proposed development would be consistent with Riverside County's W-2-10 zoning. SCE would acquire this land prior to development. Red Bluff Substation B would not overlap any existing authorized uses.

Operation and Maintenance

Solar Farm Layout B

The impacts resulting from operating and maintaining SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

The impacts resulting from operating and maintaining GT-B-2 would be reduced compared to those discussed under construction of GT-B-2 because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance, resulting in a reduced impact footprint..

Red Bluff Substation B

The impacts resulting from operating and maintaining Red Bluff Substation B would be reduced compared to those discussed under construction of Red Bluff Substation B because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance, resulting in a reduced impact footprint.

Summary of Operation and Maintenance Impacts

The operation and maintenance of Alternative 2 with SF-B, GT-B-2 and Red Bluff Substation B, would continue use of 4,347 acres of BLM-administered land, including less than one percent of the Chuckwalla DWMA and CHU, and a small amount of MWD and private land, precluding other uses of these lands. This footprint would be somewhat reduced compared to construction because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance. The Project components would continue to overlap the existing uses (including roads and transmission lines) described under construction impacts.

Decommissioning

Solar Farm Layout B

The impacts resulting from decommissioning SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

Existing and Planned Land Uses

Decommissioning would temporarily disturb approximately 62.1 acres of land (based on construction estimates). When complete, decommissioning of GT-B-2 would result in restoration of 11 acres of multiple-use BLM-administered land, making the land available for other uses. Decommissioning would require coordination similar to that performed during construction where GT-B-2 overlapped existing uses (including roads and transmission lines); however, once decommissioning was completed, GT-B-2 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 GT-B-2 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 GT-B-2 would initially result in additional disturbance to the Chuckwalla DWMA and CHU where GT-B-2 overlaps these habitat conservation areas. However, the amount of land disturbed would be much less than the one 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 GT-B-2 would not impact any agricultural lands as the site does not currently overlap agricultural lands nor would any agricultural lands be designated at the site while it would be in use as a transmission line.

Red Bluff Substation B

Existing and Planned Land Uses

Decommissioning of Red Bluff Substation B would temporarily impact a footprint similar to that of construction. When decommissioning was complete, it would result in restoration of 75 acres of land. This land (with the exception of the Telecom Site) was privately-owned prior to implementation of the Project and could be sold or retained by SCE. The

The other impacts resulting from decommissioning Red Bluff Substation B (i.e., impacts to land use plans, policies or regulations; habitat conservation areas; and agricultural lands) would be the same as those described under decommissioning of GT-B-2.

Summary of Decommissioning Impacts

The decommissioning of Alternative 2 with SF-B, GT-B-2 and Red Bluff Substation B, would make 4,347 acres of BLM-administered land, including less than one percent of the Chuckwalla DWMA and CHU, and a small amount of MWD and private land available for other uses. Additional acreage would temporarily be disturbed during decommissioning for access roads, staging areas, and similar purposes necessary for decommissioning to take place. A decommissioning plan would be created to ensure that decommissioning was conducted in accordance with then-current land use plans, policies, or regulations. Decommissioning would require coordination similar to that performed during construction where the Project components overlapped existing uses (including roads and transmission lines); however, once decommissioning was completed, the Project would no longer overlap these uses.

Summary of Combined Impacts for Alternative 2

The operation and maintenance of Alternative 2 with SF-B, GT-B-2 and Red Bluff Substation B, would convert 4,347 acres of BLM-administered land and private land, precluding other uses of these lands. Additional acreage would temporarily be disturbed during construction for access roads, staging areas, and similar purposes necessary for construction to take place. All portions of the development that would be on BLM-administered land would be compatible with the CDCA Plan.

Alternative 2 would overlap the following components (Sunlight shall implement AM-LAND-2 to minimize potential impacts to existing uses):

- SF-B: Portions of Kaiser Steel Road would be closed. The transmission line that parallels Kaiser Steel Road and the FERC easement could require modification.
- GT-B-2: Impacts from road crossings would be temporary and limited to short-term traffic disturbance during wire stringing. Towers would be sited to avoid permanent impacts to the MWD ROW, the drainage easements, the underground telephone cable, and the oil and gas pipelines; however, temporary disturbance could occur. The transmission lines could require modification. Less than one percent of the Chuckwalla DWMA and CHU would be temporarily and permanently disturbed.

Use of the privately-owned land as Red Bluff Substation B would be compatible with the W-2-10 zoning. The majority of GT-B-2 would not be within a designated utility corridor.

The decommissioning of Alternative 2 would make 4,347 acres of BLM-administered land, less than one percent of the Chuckwalla DWMA and CHU, and 75 acres of private land, available for other uses. Decommissioning would require coordination similar to that performed during construction where the Project components overlapped existing uses (including roads and transmission lines); however, once decommissioning was completed, the Project would no longer overlap these uses.

Applicant Measures and Mitigation Measures

The measures identified for Alternative 1 would also be implemented for this alternative.

CEQA Significance Determination

Solar Farm Layout B

The CEQA significance determination for SF-B would be the same as that discussed under Alternative 1.

Gen-Tie Line B-2

Construction impacts would be less than significant for criterion LU-1. There would be no impact under criteria LU-2, LU-4, and LU-5. With regards to LU-1, although development of GT-B-2 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, GT-B-2 would overlap several existing uses including roads and transmission lines; however, by implementing AM-LAND-1 and AM-LAND-2, impacts would be further reduced. With regards to LU-2, there would be no impact because GT-B-2 would be compatible with the relevant land use classifications. With regards to LU-4 and LU-5, there would be no impact because GT-B-2 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 GT-B-2, the lands disturbed would be much less than the one percent allowed by the NECO Plan.

Operation and maintenance impacts would be reduced compared to those described under construction impacts because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance, resulting in a reduced impact footprint.

Decommissioning impacts are not applicable to criteria 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 GT-B-2. 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 in the area, nor would any be designated while the site was in use as GT-B-2. With regards 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.

Red Bluff Substation B

Construction impacts would be less than significant for criterion LU-1. There would be no impact under criteria LU-2, LU-4, and LU-5. With regards to LU-1, although development of Red Bluff Substation 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, Red Bluff Substation B would overlap several existing uses including roads and transmission lines; however, by implementing AM-LAND-1 and AM-LAND-2, impacts would be further reduced. With regards to LU-2, there would be no impact because Red Bluff Substation B would be compatible with the relevant land use classification. With regards to LU-4 and LU-5, there would be no impact because Red Bluff Substation B would not overlap any agricultural lands. There would be no impact for criterion LU-3 because Red Bluff Substation B would not overlap any habitat conservation areas.

Operation and maintenance impacts would be reduced compared to those described under construction impacts because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance, resulting in a reduced impact footprint..

Decommissioning impacts are not applicable to criteria LU-1, LU-4, and LU-5. There would be no impact under LU-2. The reasons for these determinations are the same as those described under decommissioning of GT-B-2. There would be no impact for criterion LU-3 because Red Bluff Substation B would not overlap any habitat conservation areas.

Unavoidable Adverse Effects

No unavoidable adverse impacts would result from implementation of Alternative 2.

4.9.5 Alternative 3 – Reduced Footprint Alternative

Construction

Solar Farm Layout C

Existing and Planned Land Uses

Construction of SF-C would develop 3,045 acres of generally undeveloped multiple-use BLM-administered land as a restricted-access solar farm, 1,200 acres less than SF-B. SF-C would overlap fewer existing authorized uses than SF-B. It would only overlap a FERC easement along Kaiser Road, which could require modification. Sunlight shall implement AM-LAND-2 to minimize potential impacts to existing uses.

The other impacts resulting from constructing SF-C (with regards to land use plans, policies and regulations, habitat conservation areas, and agricultural lands) would be similar to those described for SF-B in Alternative 1.

Gen-Tie Line A-2

Existing and Planned Land Uses

Construction of GT-A-2 would develop 23 acres of generally undeveloped multiple-use BLM-administered land as a transmission line corridor. GT-A-2 would overlap the following existing authorized uses described in Table 3.9-3, as would GT-A-1 and GT-B-2:

- MWD ROW for canals and ditches;
- Two SCE transmission lines;
- I-10, which is under the jurisdiction of Caltrans; and
- Underground telephone cable owned by Sprint.

In addition, GT-A-2 would overlap the following existing authorized uses described in Table 3.9-3, as would GT-A-1:

- SR 177, which is under the jurisdiction of Caltrans.

Impacts from road crossings would be temporary and limited to short-term traffic disturbance during wire stringing. Towers would be sited to avoid permanent impacts to the MWD ROW and the underground telephone cable; however, temporary disturbance could occur. The transmission lines could require modification. Sunlight shall implement AM-LAND-2 to minimize potential impacts to existing uses.

Applicable Land Use Plans, Policies, or Regulations

Construction of GT-A-2 would also cross 5.1 miles of private land. Approximately 1.5 miles of the private land is zoned agricultural. The remainder is zoned W-2-10, Controlled Development Zone. Transmission lines are allowed in W-2-10 zones when approved by Riverside County.

The remainder of GT-A-2 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 A 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 GT-A-2 would not be within a designated utility corridor. Approximately one mile of GT-A-2 north of Red Bluff Substation A would be within designated utility corridor K.

The northern, approximately 0.8-mile portion of GT-A-2 would be located within or adjacent to existing Riverside County ROW where the underlying management is BLM, except for one parcel of land owned by MWD. No development is currently evident on the MWD parcel (Google Earth 2010). 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. If necessary, the Applicant will apply to the County of Riverside Transportation Department for an encroachment permit for GT-B-2 in accordance with Chapter 17.284 of the Riverside County Code.

Habitat Conservation Areas

The southern tip of GT-A-2 would traverse the Chuckwalla DWMA and CHU, which would result in temporary and permanent land disturbance. The total acreage disturbed represents much less than the one percent that may be developed according to the NECO Plan. Temporary and permanent impacts to habitat and desert wildlife would occur as described in Section 4.4, Wildlife.

Agriculture

GT-B-2 would cross approximately 1.5 miles of private agricultural land. According to recent aerial photographs, the land has been recently used for agricultural purposes. In addition, private parcels zoned W-2-10 southeast of the agricultural area on both sides of SR-177 have also been recently used for agricultural purposes, as observed from aerial photographs.

Red Bluff Substation A

The impacts resulting from constructing Red Bluff Substation A would be the same as those discussed under Alternative 1. The impacts would not change with the alternate access road , which would traverse a similar amount of the Chuckwalla DWMA and CHU, also on an existing pipeline patrol road that would be improved as part of the Project.

Summary of Construction Impacts

The construction of Alternative 3 with SF-C, GT-A-2 and Red Bluff Substation A, would develop 3,196 acres of land, primarily consisting of BLM-administered land, and including a small amount of MWD and private land, and less than one percent of the Chuckwalla DWMA and CHU, precluding other uses of these lands. Additional acreage would temporarily be disturbed during construction for access roads, staging areas, and similar purposes necessary for construction to take place. All of SF-C and Red Bluff Substation A and portions of GT-A-2 would be on BLM-administered land. The portions of the Project that would be on BLM-administered land would be compatible with the CDCA Plan.

SF-C would overlap a FERC easement along Kaiser Road, which could require modification.

GT-A-2 would overlap less than one percent of the Chuckwalla DWMA and CHU, an MWD ROW, two roads (I-10 and SR 177), two SCE transmission lines, and an underground telephone cable. Impacts from road crossings would be temporary and limited to short-term traffic disturbance during wire stringing. Towers would be sited to avoid permanent impacts to the MWD ROW and the underground telephone cable; however, temporary disturbance could occur. The transmission lines could require modification. GT-A-2 would also cross 5.1 miles of private land, approximately 1.5 miles of which is zoned agricultural. The remainder of the private land is zoned W-2-10, Controlled Development Zone. Approximately one mile of GT-A-2 north of Red Bluff Substation A would be within designated utility corridor K.

Red Bluff Substation A would overlap less than one percent of the Chuckwalla DWMA and CHU and a La Sierra University access road ROW.

Sunlight shall implement AM-LAND-2 to minimize potential impacts to existing uses.

Operation and Maintenance

Solar Farm Layout C

The impacts resulting from operating and maintaining SF-C would be reduced compared to those discussed under construction of SF-C because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance, resulting in a reduced impact footprint..

Gen-Tie Line A-2

The impacts resulting from operating and maintaining GT-A-2 would be reduced compared to those discussed under construction of GT-A-2 because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance, resulting in a reduced impact footprint.

Red Bluff Substation A

The impacts resulting from operating and maintaining Red Bluff Substation A would be the same as those discussed under Alternative 1.

Summary of Operation and Maintenance Impacts

The operation and maintenance of Alternative 1 with SF-C, GT-A-2 and Red Bluff Substation A, would continue to use 3,196 acres, primarily consisting of BLM-administered land, and including a small amount of MWD land, 5.1 miles of private land, and less than one percent of the Chuckwalla DWMA and CHU, precluding other uses of these lands. This footprint would be somewhat reduced compared to construction because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance. All portions of the development that would be on BLM-administered land would be compatible with the CDCA Plan. The Project components would continue to overlap the existing uses (including roads and transmission lines) described under construction impacts.

Decommissioning

Solar Farm Layout C

Existing and Planned Land Uses

Decommissioning of SF-C would temporarily impact a footprint similar to that of construction. When decommissioning was complete, it would result in restoration of 3,045 acres of multiple-use

BLM-administered land, making the land available for other uses. Decommissioning would require coordination similar to that performed during construction where SF-C overlapped existing uses (including roads and transmission lines); however, once decommissioning was completed, SF-C 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 SF-C 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 SF-C would not impact 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.

Agriculture

Decommissioning SF-C would not impact any agricultural lands as the site does not currently overlap agricultural lands nor would any agricultural lands be designated at the site while it would be in use as a solar farm.

Gen-Tie Line A-2

Existing and Planned Land Uses

Decommissioning would temporarily disturb approximately 62.3 acres of land (based on construction estimates). When complete, decommissioning of GT-A-2 would result in restoration of 23 acres of land, making the land available for other uses. Decommissioning would require coordination similar to that performed during construction where GT-A-2 overlapped existing uses (including agricultural land, roads, and transmission lines); however, once decommissioning was completed, GT-A-2 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 GT-A-2 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 GT-A-2 would initially result in additional disturbance to the Chuckwalla DWMA and CHU where GT-A-2 overlaps these habitat conservation areas. However, the amount of land disturbed would be much less than the one 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 GT-A-2 would result in impacts similar to construction on GT-A-2; however, once decommissioning was completed, GT-A-2 would no longer overlap agricultural land.

Red Bluff Substation A

The impacts resulting from decommissioning Red Bluff Substation A would be the same as those discussed under Alternative 1. The impacts would not change with the alternate access road.

Summary of Decommissioning Impacts

The decommissioning of Alternative 3 with SF-C, GT-A-2 and Red Bluff Substation A, would make 3,196 acres, primarily consisting of BLM-administered land, and including a small amount of MWD land, 5.1 miles of private land, and less than one percent of the Chuckwalla DWMA and CHU, available for other uses. Additional acreage would temporarily be disturbed during decommissioning for access roads, staging areas, and similar purposes necessary for decommissioning to take place. A decommissioning plan would be created to ensure that decommissioning was conducted in accordance with then-current land use plans, policies, or regulations. Decommissioning would require coordination similar to that performed during construction where the Project components overlapped existing uses (including roads and transmission lines); however, once decommissioning was completed, the Project would no longer overlap these uses.

Summary of Combined Impacts for Alternative 3

The operation and maintenance of Alternative 3 with SF-C, GT-A-2 and Red Bluff Substation A, would convert 3,196 acres of land to use for electric power generation and distribution, precluding other uses of these lands. Additional acreage would temporarily be disturbed during construction for access roads, staging areas, and similar purposes necessary for construction to take place. All portions of the development that would be on BLM-administered land would be compatible with the CDCA Plan.

Alternative 3 would overlap the following components and could require temporary disturbance or permanent modification as described (Sunlight shall implement AM-LAND-2 to minimize potential impacts to existing uses):

- SF-C: A FERC easement could require modification.
- GT-A-2: Impacts from road crossings would be temporary and limited to short-term traffic disturbance during wire stringing. Towers would be sited to avoid permanent impacts to the MWD ROW and the underground telephone cable; however, temporary disturbance could occur. The transmission lines could require modification. Less than one percent of the Chuckwalla DWMA and CHU would be temporarily and permanently disturbed.
- Red Bluff Substation A: Modification of the La Sierra University access road ROW could be required. Less than one percent of the Chuckwalla DWMA and CHU would be disturbed.

The decommissioning of Alternative 3 would temporarily impact a footprint similar to that of construction. When decommissioning was complete, it would make 3,196 acres, primarily consisting of BLM-administered land, and including a small amount of MWD and private land, and less than one percent acres of the Chuckwalla DWMA and CHU, available for other uses. Decommissioning would require coordination similar to that performed during construction where the Project components overlapped existing uses (including roads and transmission lines); however, once decommissioning was completed, the Project would no longer overlap these uses.

Applicant Measures and Mitigation Measures

The measures identified for Alternative 1 would also be implemented for this alternative.

CEQA Significance Determination

Solar Farm Layout C

Construction impacts would be less than significant for criterion LU-1. SF-C would develop thousands of 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 and no specific planned land uses have been identified, impacts would be less than significant. SF-C would only overlap a FERC easement along Kaiser Road. However, by implementing AM-LAND-1 and AM-LAND-2, impacts would be further reduced. There would be no impact for criterion LU-3 because SF-B does not overlap any habitat conservation areas. There would be no impact under criteria LU-2, LU-4 and LU-5. With regards to LU-2, there would be no impact because SF-B would be compatible with the relevant land use classifications. With regards to LU-4 and LU-5, there would be no impact because SF-C would not overlap any agricultural lands.

Operation and maintenance impacts would be reduced compared to those described under construction impacts because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance, resulting in a reduced impact footprint.

Decommissioning impacts are not applicable to criteria 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 SF-C. 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 in the area, nor would any be designated while the site was in use as SF-C. With regards 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. There would be no impact under LU-3 because SF-B would not overlap any habitat conservation areas.

Gen-Tie Line A-2

Construction impacts would be less than significant for criterion LU-1. With regards to LU-1, GT-A-2 would overlap several existing uses including roads and transmission lines; however, by implementing AM-LAND-1 and AM-LAND-2, impacts would be further reduced. Construction impacts would be less than significant for criteria LU-2, LU-4, and LU-5, all due to impacts to agricultural land. Although GT-A-2 would conflict with agricultural zoning on private land and would convert agricultural land for the development of transmission towers, the amount of land affected would be limited to the footprint of the transmission structures, with additional acreage temporarily affected during construction. Because the amount of land impacted would small, the impact would be less than significant. 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 GT-A-1, the lands disturbed would be much less than the one percent allowed by the NECO Plan.

Operation and maintenance impacts would be reduced compared to those described under construction impacts because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance, resulting in a reduced impact footprint.

Decommissioning impacts are not applicable to criterion LU-1. There would be no impact under LU-2. Beneficial impacts could occur for criteria LU-4 and LU-5. LU-1 is not applicable because conflicting uses would not be allowed while the site was in use as GT-A-2. BLM's NEPA process would ensure compatibility of future uses with existing land uses in the area. Decommissioning would present an opportunity for the land to be used for other purposes (including returning previously agricultural use to agricultural use) and remove overlaps with existing uses such as roads and transmission lines. With regards 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. Beneficial impacts could occur for LU-4 and LU-5, as agricultural land impacted by construction could be returned to agricultural use. 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.

Red Bluff Substation A

The CEQA significance determination for Red Bluff Substation A would be the same as that discussed under Alternative 1. The impacts would not change due to Access Road 2.

Unavoidable Adverse Effects

No unavoidable adverse impacts would result from implementation of Alternative 3.

4.9.6 Alternative 4—No Issuance of a Right-of-Way Grant and No Land Use Plan Amendment (No Action)

Under this alternative, the proposed Project (Solar Farm, Gen-Tie Line, and Substation) would not be approved by the BLM, and BLM would not amend the CDCA Plan. As a result, none of the components of the Desert Sunlight Solar Farm Project would be constructed at this time. BLM would continue to manage the area 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 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 land disturbance. As a result, the land use-related impacts of the Project would not occur at the proposed site, including any resulting impacts to existing uses. Existing uses such as roads, transmission facilities, and pipelines would continue; however, these uses have a minimal impact on the Project Study Area. Additionally, a project-specific land use plan amendment would not be required. However, the land on which the Project is proposed would be available to those facilities identified in the existing CDCA Plan, as well as those that may be considered through the Plan Amendment process, including another solar project requiring a land use plan amendment. In addition, in the absence of this project, other renewable energy projects may be constructed to meet state and federal mandates, and those projects would have similar impacts in this and other locations.

No impacts would occur from this alternative as it pertains to the approval of the Applicant's proposed Project; however, this alternative does not prohibit nor preclude future solar or other development in the area that would likely have impacts similar to those described in the action alternatives (Alternatives 1 through 3) within the Project area.

4.9.7 Alternative 5—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Unsuitable for Solar Energy Development (No Action with Plan Amendment)

Under this alternative, the proposed Project 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, none of the components of the Project would be constructed. 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 the CDCA Plan would be amended to make the area unavailable for future solar energy development, 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 land disturbance. As a result, the land use-related impacts of the Project would not occur at the proposed site, including any resulting impacts to existing uses. Existing uses such as roads, transmission facilities, and pipelines would continue; however, these uses have a minimal impact on the Project Study Area. As a result, the use of the site is not expected to change noticeably from existing conditions and. However, in the absence of the proposed Project, the site could be developed for other uses at a future date (e.g., mining, grazing, recreation, utilities, and other non-solar energy development), and those projects could have impacts in this and other locations. Current pending applications within the Solar Farm Study Area include a geothermal project (CACA 050946) and a wind energy project (CACA 051664).

No impacts would occur from this alternative as it pertains to the approval of the Applicant's proposed Project; however, this alternative does not prohibit nor preclude other types of future development in the area, other than solar energy development, within the Project Study Area.

4.9.8 Alternative 6—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Suitable for Solar Development (No Action with Plan Amendment)

Under this alternative, the proposed Project would not be approved by the BLM and the BLM would amend the CDCA Plan to allow for other solar projects on the site. As a result, none of the components of the Desert Sunlight Solar Farm Project would be constructed; however, it is possible that another solar energy project could be constructed within the Project Study Area. Because the CDCA Plan would be amended to specifically allow solar energy development in the Project area, the likelihood that the site would be developed with the same or a different solar technology would increase. Different solar technologies require the use of different amounts of land; however, it is expected that all solar technologies would require the use of a large amount of the site. As such, this No Action Alternative could impacts similar to those under the proposed Project. Conversion of a large amount of land for renewable energy development would not be a significant impact in and of itself. The significance of the impact would depend on the proposed development's compatibility with existing and planned land use at the site and compatibility with applicable land use plans, policies, and regulations.

No impacts would occur from this alternative as it pertains to the approval of the Applicant's proposed Project; however, this alternative does not prohibit nor preclude future solar or other development in the area that would likely have impacts similar to those described in the action alternatives (Alternatives 1 through 3) within the Project area.

4.9.9 Cumulative Impacts

Geographic Extent

The geographic extent for the consideration of cumulative impacts to land use and realty is the California Desert District, as this is the area covered by the BLM's CDCA, the land use planning document that applies to the Project area.

In addition, an analysis of cumulative impacts to land use should take into account a wide area because of the current plethora of applications for development of renewable energy facilities and other developments that would require the conversion of hundreds of thousands of acres of public and undeveloped land. Section 3.18 lists proposed energy projects in the California Desert District on BLM-administered land and includes 125 projects that would cover over 1,000,000 acres (BLM 2009).

The criteria by which land use and realty impacts would be cumulatively considered significant are the same as those identified in Section 4.9.2, Impact Criteria.

Existing Cumulative Conditions

Past development near the Project area includes those projects listed in Table 3.18-2. Three of the nine projects listed are energy development projects. The remaining projects are an extension to an interstate highway (I-10), two prisons, an iron ore mine, an MWD water pumping station, and various recreational opportunities, the majority of which have an industrial character. Other large tracts of land designated for specific and limited development purposes in the Project area include Joshua Tree National Park, the Chuckwalla DWMA and CHU, and the Alligator Rock ACEC.

Past development has increased human use of land in the Project area. However, because of the limited availability of water, human development remains limited to small scattered towns and cities, and various isolated projects such as the mine and water pumping station, amongst large tracts of undeveloped land. It is possible that the I-10 extension conflicted with some existing or planned land uses (LU-1) because it is located nearer to developed areas; however, these conflicts were presumably resolved because the project was implemented. It is not likely that past development conflicted significantly with applicable land use plans and zoning designed to minimize environmental impacts (LU-2) because none of them are located in areas designated for environmental protection. It is not likely that past development conflicted with habitat conservation or natural community conservation plans (LU-3) because there are no such plans in affect for the Project area. It is not likely that past development impacted agricultural land or zoning (LU-4 and LU-5) as agriculture in the Project area is limited by limited water supplies. Therefore, the existing projects are not cumulatively considerable given the CEQA significance criteria. The proposed Project would not result in any significant or unavoidable impacts and therefore, when combined with past development, would not be cumulatively considerable.

Future Foreseeable Projects

Foreseeable Projects in the Project Area

Table 3.18-3 lists foreseeable projects in the Project area, which is the I-10 corridor in eastern Riverside County. As shown in the table, over 25 projects are proposed in the Project area, nearly half of which have been approved or are under construction and over 20 of which are renewable energy projects. At least fifteen of the proposed projects, including the proposed Project, would permanently disturb over 1,000 acres of land each.

Only one of the projects is a land conservation project. The proposed Mojave Trails National Monument, which would protect and provide recreational opportunities on approximately 941,000 acres of federal land, would protect approximately nine times the acreage that would be developed by implementation of all of the remaining projects.

The foreseeable projects in the Project area would significantly increase developed human use of land in the area. These projects are typical of an area where human presence and use is growing and include industrial, commercial, and residential developments as well as energy and infrastructure projects. Impacts from these projects would be cumulatively considerable and significant adverse due to the amount of land that would be developed. Given the size and diversity of these projects and the substantial amount of undeveloped BLM-administered land currently in the Project area, it is likely that several of these projects would conflict with existing or planned land uses (LU-1) and/or applicable land use plans and zoning designed to minimize environmental impacts (LU-2). Therefore, the existing projects would be cumulatively considerable given the CEQA significance criteria. It is not likely that these projects would conflict with habitat conservation or natural community conservation plans (LU-3) because there are no such plans in affect for the Project area. It is not likely that these projects would impact agricultural land or zoning (LU-4 and LU-5) as agriculture in the Project area is limited by limited water supplies.

The proposed Project would not result in any significant or unavoidable impacts and represents a small fraction of the total amount of lands affected by the foreseeable projects in the area. Therefore, when combined with these projects, the impacts of the proposed Project would not be cumulatively considerable.

Foreseeable Renewable Projects in the California Desert

Table 3.18-1 lists foreseeable renewable energy projects on BLM-administered land in the California Desert District. These projects could collectively impact over 1,000,000 acres of land. Impacts from these projects would be cumulatively considerable and significant adverse due to the amount of land that would be developed. Given the large amount of land affected by these projects, it is also likely that several of these projects would conflict with existing or planned land uses (LU-1) and/or applicable land use plans and zoning designed to minimize environmental impacts (LU-2). Therefore, the existing projects would be cumulatively considerable given the CEQA significance criteria. Impacts would not likely be cumulatively considerable with regards to the other CEQA significance criteria for the same reasons described for foreseeable projects in the Project area.

The proposed Project would not result in any significant or unavoidable impacts and represents a small fraction of the total amount of lands affected by the foreseeable projects renewable projects in the CDD. Therefore, when combined with these projects, the impacts of the proposed Project would not be cumulatively considerable.

Overall Conclusion

Impacts would be cumulatively considerable and significant adverse due to the amount of land that would be developed and likely for CEQA significance criteria LU-1 and LU-2.

4.10 NOISE AND VIBRATION

4.10.1 Methodology for Analysis

Noise and vibration issues addressed for the various alternatives were identified by review of comments received during the EIS scooping process and by independent evaluation of project-related impacts. The identified issues include:

- Noise from on-site construction activity at the solar farm site, along the transmission line corridor, and at the Red Bluff substation site;
- Noise from construction-related vehicle traffic;
- Noise from facility operations;
- Noise impacts to wildlife; and
- Vibration impacts from on-site construction activity.

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. Qualitative evaluations were prepared to address issues related noise impacts to wildlife. Additional details regarding impact assessment methodologies are discussed under relevant impact topics. .

The region of interest for noise and vibration issues is typically very 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 ¼ 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 4.10-1 compares major features of the action alternatives with an emphasis on features relevant to construction activities.

Table 4.10-1
Comparison of Action Alternative Features Relevant to Noise and Vibration

Project Component	Parameter	Alternative 1	Alternative 2	Alternative 3
Solar Farm	Site Acres	4,245 acres	4,245 acres	3,045 acres
Solar Farm	Total Surface Coverage by Project Features	1,443 acres	1,443 acres	1,074 acres
Solar Farm	Open Portion of Developed Site	2,802 acres	2,802 Acres	1,972 acres
Solar Farm	De-compaction Area Between Solar Arrays	1,535 acres	1,535 acres	1,192 acres
Solar Farm	Distance to Closest Existing Residence	1,175 feet	1,175 feet	1,175 feet
Gen-Tie Transmission Line	Corridor Length	12.2 miles	9.5 miles	10 miles
Gen-Tie Transmission Line	Corridor Acres	233 acres	185 acres	189 acres
Gen-Tie Transmission Line	Number of Transmission Towers	73	55	58
Gen-Tie Transmission Line	Construction Disturbance Area	76.7 acres	62.3 acres	62.1 acres
Gen-Tie Transmission Line	Permanently Affected Area	18 acres	11 acres	23 acres
Gen-Tie Transmission Line	Distance to Closest Existing Residence	500 feet	500 feet	No nearby residences
Red Bluff Substation	Substation Site Acres	75 acres	75 acres	75 acres
Red Bluff Substation	Adjacent Drainage Facility Areas	20 acres	11 acres	20 acres
Red Bluff Substation	Additional Staging Area	10 acres	10 acres	10 acres
Red Bluff Substation	Telecommunications Site Area	0.22 acres	0.22 acres	0.22 acres
Red Bluff Substation	Transmission Line Acres	5 acres	2.23 acres	5 acres
Red Bluff Substation	Distribution Line Acres	8.28 acres	0.12 acres	8.28 acres
Red Bluff Substation	Access Road Length	20,000 feet	1,800 feet	20,000 feet
Red Bluff Substation	Total Construction Disturbance Area	165.4 acres	118.2 acres	165.4 acres
Red Bluff Substation	Permanently Affected Area	127.6 acres	89.6 acres	127.6 acres
Red Bluff Substation	Distance to Closest Existing Residence	No nearby residences	No nearby residences	No nearby residences

4.10.2 CEQA Significance Criteria

Under CEQA, the proposed Project would have a significant noise and vibration impacts if it 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 on-site residents or visitors to noise levels that exceed land use compatibility standards or criteria established in the noise element of the Riverside County General Plan (see Table 3.10-2 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 3.10-2 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 3.10-4 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 3.10-5 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 3.10-5 in the Noise and Vibration section of Chapter 3).

For the proposed Project, 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. Sunlight and SCE 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 1.7 miles west of the northern portion of the proposed solar farm site and Desert Center Airport is about 4 miles 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 (Riverside County 2005) shows that the 55 dBA CNEL contour for the Desert Center Airport is confined to the immediate runway area. 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.

4.10.3 Alternative 1 – Proposed Action

Construction

Solar Farm Layout B

Noise From On-Site Construction Activity. Noise impacts from on-site construction activity have been evaluated using a detailed spreadsheet model. The spreadsheet model calculates noise levels at a range of receptor distances for individual phases of construction activity. The spreadsheet model has an expandable database of 140 equipment entries including heavy equipment, power tools, and other noise sources such as equipment backup beepers and hammering. Some equipment types have multiple entries to reflect a range of typical engine sizes. The database provides a default reference noise level at 50 feet, default atmospheric absorption coefficients, and default operating time factors for hours when the equipment is active. The operating time fractions allow for more realistic modeling of noise from intermittent equipment operations. Users can modify the default data to provide a project-specific analysis. The model requires users to specify the number and type of equipment items active in the same general work area for each hour of a 24-hour cycle. The spreadsheet model uses the hourly construction activity profile to calculate maximum hourly noise levels; average daytime, evening, and nighttime noise levels; 24-hour average noise levels (24-hour Leq); and 24-hour CNEL or Ldn noise levels.

Solar farm development would occur over a 26-month period, with construction activity undertaken as a rolling sequence of activity on different subareas of the site. Construction would generally progress as incremental work areas from the south end to the north end of the project site. Tortoise exclusion fencing of the entire site would be the initial phase of activity, followed by threatened species removals and relocations. Temporary construction offices, sanitary facilities, and water supply facilities would be established prior to initiating subarea construction activities. Incremental construction of access roads and staging areas would generally lead the main construction activity sequence, followed by site clearing and grading, which would be followed by various facility construction activity stages. Construction activity would generally occur over a standard five-day workweek with activity limited to daytime hours consistent with the Riverside County noise ordinance (beginning about 7 am during most of the year, and perhaps starting as early as 6 am during the summer months). 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.

The construction noise analysis for the solar farm used the construction emissions spreadsheet modeling analyses described in Section 4.2.2 to identify construction activity phases and associated equipment use. Five of the 18 construction phases were selected for noise modeling analysis:

- 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 phases would be expected to generate lower noise levels than these phases. In most cases, equipment used during a construction 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 4.10-2 summarizes the construction noise analysis results for the five construction phases with the greatest noise generation for Solar Farm Layout B. Appendix E-1 provides additional information from the construction noise modeling analysis.

There are only a few scattered rural residences within one mile of the proposed solar farm site (refer to Figure 3.10-1 in the Noise section of Chapter 3). The closest residence is about 1,175 feet from the proposed solar farm property line. All other nearby homes are 0.5 miles or further from the proposed solar farm property line. Homes along Kaiser Road to the west of the proposed solar farm are between 0.5 and 1 mile from the site. The closest home southeast of the proposed solar farm is more than one mile from the site. Homes near the MWD Eagle Mountain Pumping Plant are about 1.75 miles from the proposed solar farm site. The Eagle Mountain Elementary School and the Eagle Mountain Village residential area are about 2.5 miles west-northwest of the proposed solar farm site. The Lake Tamarisk development is about 4 miles south of the proposed solar farm site. The community of Desert Center is about 6 miles south of the proposed solar farm site.

Table 4.10-2
Summary of Solar Farm Site Construction Noise

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
Vegetation Clearing	Brush Cutters, Tracked Dozer, Wheeled Tractor, Wheeled Loader, Wood Chipper, ATVs, Water Truck, Dump Truck	400	67.9	64.5	61.5

Table 4.10-2 (continued)
Summary of Solar Farm Site Construction Noise

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	700	62.4	59.0	55.9
Vegetation Clearing	Brush Cutters, Tracked Dozer, Wheeled Tractor, Wheeled Loader, Wood Chipper, ATVs, Water Truck, Dump Truck	1,000	58.7	55.2	52.2
Vegetation Clearing	Brush Cutters, Tracked Dozer, Wheeled Tractor, Wheeled Loader, Wood Chipper, ATVs, Water Truck, Dump Truck	1,500	54.1	50.6	47.6
Vegetation Clearing	Brush Cutters, Tracked Dozer, Wheeled Tractor, Wheeled Loader, Wood Chipper, ATVs, Water Truck, Dump Truck	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
Site Grading	Scraper, Tracked Dozer, Grader, Roller-Compactor, ATVs, Water Truck	400	68.6	66.2	63.2

Table 4.10-2 (continued)
Summary of Solar Farm Site Construction Noise

Construction Phase	Typical Equipment	Distance From Construction, feet	Maximum 1-Hour Leq Increment, dBA	Average Daytime Leq Increment, dBA	CNEL Increment, dBA
Site Grading	Scraper, Tracked Dozer, Grader, Roller-Compactor, ATVs, Water Truck	700	63.1	60.7	57.7
Site Grading	Scraper, Tracked Dozer, Grader, Roller-Compactor, ATVs, Water Truck	1,000	59.3	57.0	54.0
Site Grading	Scraper, Tracked Dozer, Grader, Roller-Compactor, ATVs, Water Truck	1,500	54.7	52.4	49.3
Site Grading	Scraper, Tracked Dozer, Grader, Roller-Compactor, ATVs, Water Truck	2,500	48.0	45.7	42.7
Array Post Installation	Auger Rig, Vibratory Pile Driver, Forklift, ATVs, Water Truck, Flatbed Truck	100	83.2	81.3	78.3
Array Post Installation	Auger Rig, Vibratory Pile Driver, Forklift, ATVs, Water Truck, Flatbed Truck	400	70.7	68.8	65.8
Array Post Installation	Auger Rig, Vibratory Pile Driver, Forklift, ATVs, Water Truck, Flatbed Truck	700	65.3	63.5	60.5
Array Post Installation	Auger Rig, Vibratory Pile Driver, Forklift, ATVs, Water Truck, Flatbed Truck	1,000	61.7	59.9	56.9
Array Post Installation	Auger Rig, Vibratory Pile Driver, Forklift, ATVs, Water Truck, Flatbed Truck	1,500	57.4	55.5	52.5
Array Post Installation	Auger Rig, Vibratory Pile Driver, Forklift, ATVs, Water Truck, Flatbed Truck	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

Table 4.10-2 (continued)
Summary of Solar Farm Site Construction Noise

Construction Phase	Typical Equipment	Distance From Construction, feet	Maximum 1-Hour Leq Increment, dBA	Average Daytime Leq Increment, dBA	CNEL Increment, dBA
Trenching and Underground Cable Installation	Trencher, Backhoe-Loader, Cable Plow, Forklift, ATVs, Flatbed Truck, Dump Truck, Water Truck	400	63.2	60.1	57.1
Trenching and Underground Cable Installation	Trencher, Backhoe-Loader, Cable Plow, Forklift, ATVs, Flatbed Truck, Dump Truck, Water Truck	700	57.8	54.7	51.7
Trenching and Underground Cable Installation	Trencher, Backhoe-Loader, Cable Plow, Forklift, ATVs, Flatbed Truck, Dump Truck, Water Truck	1,000	54.2	51.1	48.1
Trenching and Underground Cable Installation	Trencher, Backhoe-Loader, Cable Plow, Forklift, ATVs, Flatbed Truck, Dump Truck, Water Truck	1,500	49.9	46.7	43.7
Trenching and Underground Cable Installation	Trencher, Backhoe-Loader, Cable Plow, Forklift, ATVs, Flatbed Truck, Dump Truck, Water Truck	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
Soil Compaction and Dust Palliative Application	Roller-Compactors, ATVs, Water Truck	400	62.3	59.7	56.7
Soil Compaction and Dust Palliative Application	Roller-Compactors, ATVs, Water Truck	700	57.1	54.5	51.4
Soil Compaction and Dust Palliative Application	Roller-Compactors, ATVs, Water Truck	1,000	53.5	50.9	47.9

Table 4.10-2 (continued)
Summary of Solar Farm Site Construction Noise

Construction Phase	Typical Equipment	Distance From Construction, feet	Maximum 1-Hour Leq Increment, dBA	Average Daytime Leq Increment, dBA	CNEL Increment, dBA
Soil Compaction and Dust Palliative Application	Roller-Compactors, ATVs, Water Truck	1,500	49.3	46.7	43.7
Soil Compaction and Dust Palliative Application	Roller-Compactors, ATVs, Water Truck	2,500	43.5	40.9	37.9

Leq = equivalent continuous noise level
CNEL = community noise equivalent level (a 24-hour weighted average)
Source: Tetra Tech analyses

Along the western side of the proposed solar farm site, there would be approximately 100 feet between the property line and the closest solar modules. The area between the western property line and the solar arrays would include a tortoise exclusion fence, a drainage and debris control channel, and an interior security fence. For almost all of the 26-month construction period, construction activity at the proposed solar farm site would be well over 2,000 feet from the nearest residence west of the site and over two miles from the nearest residence southwest of the site. Only a small portion of the overall construction activity would occur within half a mile of the nearest residence west of the proposed solar farm site.

Construction of the solar farm would involve a few periods when construction activity would occur about 1.200 to 1,300 feet from the closest residence west of the solar farm site (installation of perimeter fencing, construction of drainage and debris basins, construction of the closest solar array modules, and de-compaction of soils between solar array module at the end of construction). For most of the 26-month construction period, however, construction activity at the proposed solar farm site would be well over 2,000 feet from the nearest residence west of the site and over two miles from the nearest residence southeast of the site. Only a small portion of the overall construction activity would occur within half a mile of the nearest residence west of the proposed solar farm site.

Existing background noise levels near the solar farm 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. Based on construction noise estimates presented above in Table 4.10-2, noise from construction activity generally would be audible at locations less than a half mile from the solar farm. When construction activity is at the eastern side of the solar farm site, it probably would not be audible for any nearby residences. For the residence closest to the solar farm site, maximum CNEL increments from construction activity would be less than 57 dBA, which is within Riverside County's normally acceptable range for rural residential land uses. Maximum 1-hour Leq noise levels at this location would be about 59 dBA. While this would be higher than expected average background noise conditions, it is comparable to noise levels that would occur naturally during periods with strong winds.

Noise from Construction-Related Traffic. Noise impacts from construction-related traffic have been evaluated using a spreadsheet model originally designed as a batch mode implementation of the 1978 Federal Highway Administration (FHWA) traffic noise prediction model (Barry and Reagan 1978). The original FHWA model was designed to analyze noise levels from highway traffic for a single hour, using highway geometrics and traffic condition data input on a lane-by-lane basis. In contrast, the spreadsheet model used for this analysis is designed to model traffic noise on an hourly basis over a 24-hour period, providing a direct calculation of hourly noise levels plus 24-hour CNEL or Ldn noise levels. In addition, the spreadsheet model is designed to accommodate highway segments defined on either a single lane or a multi-lane basis. The spreadsheet model has been modified to correlate more closely with the more recent FHWA TNM traffic noise model (FHWA 1998, 2004a). The FHWA TNM model has different noise generation equations than the 1978 traffic noise prediction model, and also uses a different procedure to predict noise reductions as a function of distance and terrain conditions. These differences have been accounted for in the spreadsheet model by developing tables of adjustment factors as a function of vehicle type, vehicle speed, and receptor distance.

The spreadsheet model analyzes hourly traffic volumes over a 24-hour period for a road network of up to 30 highway segments (single or multi-lane, one-way or bi-directional) and up to 40 receptor locations. Users input the receptor coordinates, highway segment centerline coordinates, highway width, average daily traffic volume, nominal free-flow speed, and hourly vehicle capacity for each highway segment. In addition, users input an hourly distribution pattern for the daily traffic, the hourly percentage of medium duty trucks, and the hourly percentage of heavy trucks. The hourly traffic distribution patterns can be developed on a project-specific basis or selected from a library of default patterns based on a combination of 24-hour traffic counts from various locations and generalized literature data. Appendix E-2 provides additional details concerning the spreadsheet model.

For the Desert Sunlight project, existing traffic patterns for Kaiser Road were based on the 24-hour traffic counts provided in the traffic study (Hernandez, Kroone & Associates 2010). These traffic counts show that medium trucks (2 axles and six tires) account for 20 percent of existing daily traffic, and that heavy trucks (three or more axles) account for 6.5 percent of existing daily traffic. Kaiser Road was modeled in two segments, one between Highway 177 and the Lake Tamarisk development, and the other between the Lake Tamarisk development and the solar farm site. Traffic counts taken north of the Lake Tamarisk development were increased by 39 percent to account for expected higher traffic volumes south of the Lake Tamarisk development.

Baseline traffic conditions for Highway 177 and I-10 were developed from 2008 traffic count data and 2007 truck count data downloaded from the Caltrans website (Caltrans 2007, 2008). I-10 was split into two segments, one east of Highway 177 and the other west of Highway 177. No 24-hour count data was available for Highway 177 or I-10. Caltrans annual average daily traffic (AADT) and peak hour data indicated a peak hour factor of 12.9 percent for Highway 177 and 13 percent for I-10. These high peak hour factors are assumed to reflect a mid-day peak traffic period rather than peak periods during normal morning and afternoon commute times. A default mid-day peak traffic pattern from the spreadsheet model database was modified to reflect the peak hour factors for Highway 177 and I-10.

Caltrans truck count data showed that medium trucks accounted for 4.4 percent of AADT on Highway 177, 5.2 percent of AADT on I-10 west of Highway 177, and 5.6 percent of AADT on I-10 east of Highway 177. Caltrans data also showed that heavy trucks accounted for 9.6 percent of AADT on Highway 177, 34.3 percent of AADT on I-10 west of Highway 177, and 37.8 percent of AADT on I-10 east of Highway 177. Default truck traffic distribution patterns from the spreadsheet model database were modified to reflect the overall truck percentages for Highway 177 and I-10.

Construction periods for the solar farm and the Gen-Tie Line would overlap. Kaiser Road would be used by construction-related traffic for both the solar farm and the Gen-Tie Line. Consequently, construction-related traffic volumes used for this analysis were the combined volumes attributable to solar farm construction and Gen-Tie Line construction. 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, and to occur between 7 am and 3 pm. Construction-related worker commute traffic was assumed to be a mix of light duty vehicles and medium trucks (shuttle buses). All arriving worker commute traffic was assumed to occur between 6 am and 7 am, and to depart between 3 pm and 4 pm. Separate analyses were performed for 2011 and 2012 construction traffic. Construction traffic during 2013 was considered too low to warrant additional traffic noise modeling. The traffic noise modeling assumed free-flow vehicle speeds of 45 mph on Kaiser Road, 50 mph on Highway 177, and 65 mph on I-10.

Three sets of receptor transects were established perpendicular to Highway 177 and Kaiser Road. One receptor transect was located in Desert Center south of Ragsdale Road. Two receptor transects were located along Kaiser Road, one at the Lake Tamarisk development (about 600 feet north of Oasis Road) and one midway between the Lake Tamarisk development and the solar farm site. Modeled receptor locations were established on the east and west sides Highway 177 or Kaiser Road at distances of 50 feet, 100 feet, 250 feet, 500 feet, 750 feet, and 1,000 feet from the Highway 177 or Kaiser Road centerline.

Table 4.10-3 summarizes modeled CNEL levels from 2011 and 2012 construction traffic, and Table 4.10-4 summarizes modeled maximum 1-hour Leq noise levels from 2011 and 2012 construction traffic. Both tables also include modeling results for existing traffic conditions. Additional information on the traffic noise modeling analysis is provided in Appendix E-2.

As shown in Tables 4.10-3 and 4.10-4, construction-related traffic noise would be somewhat higher during 2011 than during 2012. Because there would be little construction-related traffic after 2012, traffic noise conditions would return to existing levels in 2013. 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 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. In the Lake Tamarisk area, there would be an obvious increase in traffic noise levels within about 100 feet of Kaiser Road, with noticeable changes in traffic noise extending to about 250 feet from Kaiser Road. Locations more than 250 feet from Kaiser Road would not experience a noticeable change in traffic noise conditions. But even at 50 feet from the centerline of Kaiser Road, CNEL levels would still be within Riverside County's normally acceptable range for rural residential land uses.

Table 4.10-3
Modeled CNEL Noise Levels from Construction Traffic, Solar Farm Layout B and Gen-Tie Line A-1

Location	Distance from Road Centerline, feet	Existing CNEL, dBA	2011 CNEL, dBA	2012 CNEL, dBA	2011 Change from Existing, dBA	2012 Change from Existing, dBA
Desert Center, West Side of Highway 177	50	66.9	67.5	67.3	0.6	0.4
Desert Center, West Side of Highway 177	100	66.1	66.4	66.3	0.3	0.2
Desert Center, West Side of Highway 177	250	65.8	65.9	65.9	0.1	0.1
Desert Center, West Side of Highway 177	500	65.6	65.8	65.7	0.2	0.1
Desert Center, West Side of Highway 177	750	65.6	65.7	65.7	0.1	0.1
Desert Center, West Side of Highway 177	1,000	65.6	65.7	65.7	0.1	0.1
Desert Center, East Side of Highway 177	50	66.9	67.5	67.3	0.6	0.4
Desert Center, East Side of Highway 177	100	66.2	66.5	66.4	0.3	0.2
Desert Center, East Side of Highway 177	250	65.9	66.1	66.0	0.2	0.1
Desert Center, East Side of Highway 177	500	66.0	66.1	66.0	0.1	0.0
Desert Center, East Side of Highway 177	750	66.0	66.1	66.0	0.1	0.0
Desert Center, East Side of Highway 177	1,000	66.0	66.1	66.1	0.1	0.1

Table 4.10-3 (continued)
Modeled CNEL Noise Levels from Construction Traffic, Solar Farm Layout B and Gen-Tie Line A-1

Location	Distance from Road Centerline, feet	Existing CNEL, dBA	2011 CNEL, dBA	2012 CNEL, dBA	2011 Change from Existing, dBA	2012 Change from Existing, dBA
Lake Tamarisk, West Side of Kaiser Road	50	51.9	58.7	57.6	6.8	5.7
Lake Tamarisk, West Side of Kaiser Road	100	48.0	53.8	52.7	5.8	4.7
Lake Tamarisk, West Side of Kaiser Road	250	44.7	47.6	46.9	2.9	2.2
Lake Tamarisk, West Side of Kaiser Road	500	43.9	45.2	44.8	1.3	0.9
Lake Tamarisk, West Side of Kaiser Road	750	43.7	44.5	44.2	0.8	0.5
Lake Tamarisk, West Side of Kaiser Road	1,000	43.6	44.1	43.9	0.5	0.3
Lake Tamarisk, East Side of Kaiser Road	50	51.9	58.7	57.6	6.8	5.7
Lake Tamarisk, East Side of Kaiser Road	100	48.0	53.8	52.7	5.8	4.7
Lake Tamarisk, East Side of Kaiser Road	250	44.7	47.6	46.9	2.9	2.2
Lake Tamarisk, East Side of Kaiser Road	500	43.9	45.2	44.8	1.3	0.9
Lake Tamarisk, East Side of Kaiser Road	750	43.7	44.5	44.3	0.8	0.6
Lake Tamarisk, East Side of Kaiser Road	1,000	43.6	44.1	44.0	0.5	0.4

Table 4.10-3 (continued)
Modeled CNEL Noise Levels from Construction Traffic, Solar Farm Layout B and Gen-Tie Line A-1

Location	Distance from Road Centerline, feet	Existing CNEL, dBA	2011 CNEL, dBA	2012 CNEL, dBA	2011 Change from Existing, dBA	2012 Change from Existing, dBA
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	50	49.9	58.2	56.9	8.3	7.0
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	100	45.1	53.1	51.7	8.0	6.6
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	250	39.0	45.4	44.2	6.4	5.2
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	500	36.6	40.9	39.8	4.3	3.2
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	750	35.9	38.9	38.1	3.0	2.2
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	1,000	35.4	37.6	37.0	2.2	1.6
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	50	49.9	58.2	56.9	8.3	7.0

Table 4.10-3 (continued)
Modeled CNEL Noise Levels from Construction Traffic, Solar Farm Layout B and Gen-Tie Line A-1

Location	Distance from Road Centerline, feet	Existing CNEL, dBA	2011 CNEL, dBA	2012 CNEL, dBA	2011 Change from Existing, dBA	2012 Change from Existing, dBA
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	100	45.1	53.1	51.7	8.0	6.6
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	250	39.0	45.4	44.2	6.4	5.2
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	500	36.6	40.9	39.8	4.3	3.2
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	750	35.9	38.9	38.1	3.0	2.2
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	1,000	35.5	37.6	37.0	2.1	1.5

CNEL = community noise equivalent level (a 24-hour weighted average)
Source: Tetra Tech analyses

Table 4.10-4
Modeled Maximum 1-Hour Leq Noise Levels from Construction Traffic, Solar Farm Layout B and Gen-Tie Line A-1

Location	Distance from Road Centerline, feet	Existing Maximum 1-Hour Leq, dBA	2011 Maxiumu 1-Hour Leq, dBA	2012 Maximum 1-Hour Leq, dBA	2011 Change from Existing, dBA	2012 Change from Existing, dBA
Desert Center, West Side of Highway 177	50	71.0	71.2	71.1	0.2	0.1
Desert Center, West Side of Highway 177	100	70.3	70.4	70.4	0.1	0.1
Desert Center, West Side of Highway 177	250	70.0	70.0	70.0	0.0	0.0
Desert Center, West Side of Highway 177	500	69.9	69.9	69.9	0.0	0.0
Desert Center, West Side of Highway 177	750	69.8	69.9	69.8	0.1	0.0
Desert Center, West Side of Highway 177	1,000	69.8	69.8	69.8	0.0	0.0
Desert Center, East Side of Highway 177	50	71.0	71.2	71.1	0.2	0.1
Desert Center, East Side of Highway 177	100	70.4	70.5	70.5	0.1	0.1
Desert Center, East Side of Highway 177	250	70.2	70.3	70.2	0.1	0.0
Desert Center, East Side of Highway 177	500	70.3	70.3	70.3	0.0	0.0

Table 4.10-4 (continued)
Modeled Maximum 1-Hour Leq Noise Levels from Construction Traffic, Solar Farm Layout B and Gen-Tie Line A-1

Location	Distance from Road Centerline, feet	Existing Maximum 1-Hour Leq, dBA	2011 Maxiumu 1-Hour Leq, dBA	2012 Maximum 1-Hour Leq, dBA	2011 Change from Existing, dBA	2012 Change from Existing, dBA
Desert Center, East Side of Highway 177	750	70.3	70.3	70.3	0.0	0.0
Desert Center, East Side of Highway 177	1,000	70.3	70.3	70.3	0.0	0.0
Lake Tamarisk, West Side of Kaiser Road	50	53.4	60.4	59.4	7.0	6.0
Lake Tamarisk, West Side of Kaiser Road	100	50.3	55.6	54.7	5.3	4.4
Lake Tamarisk, West Side of Kaiser Road	250	48.4	50.4	49.7	2.0	1.3
Lake Tamarisk, West Side of Kaiser Road	500	48.0	48.8	48.5	0.8	0.5
Lake Tamarisk, West Side of Kaiser Road	750	47.9	48.4	48.2	0.5	0.3
Lake Tamarisk, West Side of Kaiser Road	1,000	47.8	48.1	48.0	0.3	0.2
Lake Tamarisk, East Side of Kaiser Road	50	53.4	60.4	59.4	7.0	6.0
Lake Tamarisk, East Side of Kaiser Road	100	50.3	55.6	54.8	5.3	4.5

Table 4.10-4 (continued)
Modeled Maximum 1-Hour Leq Noise Levels from Construction Traffic, Solar Farm Layout B and Gen-Tie Line A-1

Location	Distance from Road Centerline, feet	Existing Maximum 1-Hour Leq, dBA	2011 Maxiumu 1-Hour Leq, dBA	2012 Maximum 1-Hour Leq, dBA	2011 Change from Existing, dBA	2012 Change from Existing, dBA
Lake Tamarisk, East Side of Kaiser Road	250	48.4	50.4	49.7	2.0	1.3
Lake Tamarisk, East Side of Kaiser Road	500	48.0	48.9	48.5	0.9	0.5
Lake Tamarisk, East Side of Kaiser Road	750	47.9	48.4	48.2	0.5	0.3
Lake Tamarisk, East Side of Kaiser Road	1,000	47.9	48.1	48.0	0.2	0.1
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	50	50.8	59.8	58.6	9.0	7.8
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	100	46.2	54.6	53.4	8.4	7.2
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	250	41.4	47.2	45.6	5.8	4.2

Table 4.10-4 (continued)
Modeled Maximum 1-Hour Leq Noise Levels from Construction Traffic, Solar Farm Layout B and Gen-Tie Line A-1

Location	Distance from Road Centerline, feet	Existing Maximum 1-Hour Leq, dBA	2011 Maxiumu 1-Hour Leq, dBA	2012 Maximum 1-Hour Leq, dBA	2011 Change from Existing, dBA	2012 Change from Existing, dBA
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	500	40.0	43.6	42.4	3.6	2.4
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	750	39.6	41.9	41.1	2.3	1.5
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	1,000	39.4	40.7	40.2	1.3	0.8
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	50	50.8	59.8	58.6	9.0	7.8
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	100	46.2	54.6	53.4	8.4	7.2

Table 4.10-4 (continued)
Modeled Maximum 1-Hour Leq Noise Levels from Construction Traffic, Solar Farm Layout B and Gen-Tie Line A-1

Location	Distance from Road Centerline, feet	Existing Maximum 1-Hour Leq, dBA	2011 Maxiumu 1-Hour Leq, dBA	2012 Maximum 1-Hour Leq, dBA	2011 Change from Existing, dBA	2012 Change from Existing, dBA
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	250	41.4	47.2	45.6	5.8	4.2
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	500	40.0	43.6	42.4	3.6	2.4
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	750	39.6	42.0	41.1	2.4	1.5
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	1,000	39.4	40.7	40.3	1.3	0.9

Leq = equivalent continuous noise level
Source: Tetra Tech analyses

Background noise levels for the area between the Lake Tamarisk development and the solar farm site are lower than background noise levels along the southern part of Kaiser Road. Although overall traffic noise levels during the 2011 and 2012 construction period would be slightly less in this area than in the Lake Tamarisk area, the change in noise levels due to construction-related traffic would be more noticeable. For this area, there would be an obvious increase in traffic noise levels within about 300 feet of Kaiser Road, with noticeable changes in traffic noise extending to about 800 feet from Kaiser Road. But even at 50 feet from the centerline of Kaiser Road, CNEL levels would still be within Riverside County's normally acceptable range for rural residential land uses.

Noise Impacts to Wildlife. Noise effects on wildlife and livestock are similar in most respects to noise effects on people, with potential physiological, behavioral, and activity interference effects (EPA 1971, 1980). Potential physiological effects include a generalized increase in stress conditions, loss of hearing sensitivity, and effects of sleep disturbance. In general, loss of hearing sensitivity from prolonged exposure to loud noises or from short term exposure to intense impulse noise is likely to be the most important physiological effect. Potential behavioral effects of noise are best categorized as general disturbance and potential disruption or important behavioral patterns (such as reproductive and brood rearing behaviors). Potential activity interference effects include changes in habitat use patterns and interference with vocal or non-vocal communication and signaling.

Although the acoustic frequency range for hearing and relative sensitivity to different acoustic frequencies vary among species, the hearing range for most terrestrial vertebrates broadly overlaps that of people. The hearing range for some species extends beyond the frequency range for people at either high or low frequencies. Many mammals have a hearing range that extends to much higher frequencies than those audible to people. Most birds have a range of hearing that is narrower than that of people. Most terrestrial species also show a relative sensitivity pattern of peak sensitivity to mid range frequencies, with reduced sensitivity to low and high frequencies.

While there are many anatomical and physiological differences among different groups of vertebrates, there are also many broad similarities among terrestrial vertebrates. Auditory system similarities among terrestrial vertebrates lead to some general similarities in physiological and behavioral responses to noise levels. For both people and many terrestrial vertebrates, sound levels above 110 to 120 dBA have the potential for causing physiological effects on the auditory system (EPA 1971, 1980). Similarly, behavioral effects are noted over a broad range of sound levels, and are influenced greatly by the context of noise exposure and the novelty of the noise source. Except in unusual situations, sound levels below 70 dBA produce only limited behavioral responses in most wildlife species (EPA 1980).

Many reports of apparent noise disturbance to terrestrial wildlife fail to distinguish between disturbance from noise per se and disturbance from visible activity (EPA 1971, 1980). In general, most terrestrial wildlife species are more easily disturbed by visible activity than by noise alone. Behavioral accommodation to noise conditions is common among vertebrates, especially when noise occurs in isolation from visible activity (EPA 1980, US Fish and Wildlife Service 1988, Wyle Labs no date). It should be noted, however, that behavioral accommodation to noise conditions does not preclude physiological effects from noise exposure. When animals learn to associate particular noises with active disturbance conditions (such as snowmobile, off-road vehicle, helicopters, low-flying aircraft, or boat activity), noise per se can become an important disturbance factor. But when animals do not associate a noise source with active disturbance, habituation and accommodation to the noise source is common. This is a common occurrence with highway traffic, and explains the persistent problem of wildlife road kills, even though highway traffic is clearly an audible noise source.

Clearing, grading, and soil compacting activities during construction of the solar farm would eliminate most on-site wildlife habitat values, and would eliminate or force most vertebrate wildlife from the site. The elimination of wildlife habitat values and the elimination or forced movement of wildlife populations would be a consequence of physical construction activity, not a consequence of noise impacts. Because noise levels decline rapidly with increasing distance, construction-related noise levels would not be high enough at off-site locations to cause purely noise-related impacts to wildlife. Thus, noise impacts to wildlife from on-site construction activity would be limited to wildlife remaining in portions of the overall construction area that have not yet experienced active disturbance by construction equipment.

Ground Vibrations from Construction Activity. Heavy equipment and trucks used for solar farm construction are potential sources of ground vibration. Ground vibration conditions expected from solar farm 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 farm area 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 farm 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 4.10-5 summarizes the results of the vibration analysis.

Table 4.10-5
Ground Vibration Levels for Typical Equipment Used for Solar Farm Construction

Equipment Type	Vibration Type	Parameter	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
Vibratory Pile Driver, typical	Frequent or Continuous	Human Response	mildly annoying	barely perceptible	barely perceptible	not perceptible
Vibratory Pile Driver, typical	Frequent or Continuous	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
Self-Loading Scraper	Frequent or Continuous	Human Response	distinctly perceptible	barely perceptible	not perceptible	not perceptible
Self-Loading Scraper	Frequent or Continuous	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
Static Roller-Compactor	Frequent or Continuous	Human Response	distinctly perceptible	barely perceptible	not perceptible	not perceptible
Static Roller-Compactor	Frequent or Continuous	Building Damage Potential	extremely low	none	none	None
Large Bulldozer	Frequent or Continuous	PPV, in/sec	0.089	0.015	0.006	0.004
Large Bulldozer	Frequent or Continuous	Human Response	distinctly perceptible	barely perceptible	not perceptible	Not perceptible
Large Bulldozer	Frequent or Continuous	Building Damage Potential	extremely low	none	none	None

Table 4.10-5 (continued)
Ground Vibration Levels for Typical Equipment Used for Solar Farm Construction

Equipment Type	Vibration Type	Parameter	25 feet*	100 feet*	200 feet*	300 feet*
Drill Rig or Auger	Frequent or Continuous	PPV, in/sec	0.089	0.015	0.006	0.004
Drill Rig or Auger	Frequent or Continuous	Human Response	distinctly perceptible	barely perceptible	not perceptible	Not perceptible
Drill Rig or Auger	Frequent or Continuous	Building Damage Potential	extremely low	none	none	None
Loaded Truck	Single Event	PPV, in/sec	0.076	0.013	0.005	0.003
Loaded Truck	Single Event	Human Response	barely perceptible	not perceptible	not perceptible	Not perceptible
Loaded Truck	Single Event	Building Damage Potential	None	none	none	None
Small Bulldozer	Frequent or Continuous	PPV, in/sec	0.003	0.000	0.000	0.000
Small Bulldozer	Frequent or Continuous	Human Response	not perceptible	not perceptible	not perceptible	Not perceptible
Small Bulldozer	Frequent or Continuous	Building Damage Potential	None	none	none	None
Excavator or Backhoe	Frequent or Continuous	PPV, in/sec	0.003	0.000	0.000	0.000
Excavator or Backhoe	Frequent or Continuous	Human Response	not perceptible	not perceptible	not perceptible	Not perceptible
Excavator or Backhoe	Frequent or Continuous	Building Damage Potential	None	none	none	None
Wheeled Loader	Frequent or Continuous	PPV, in/sec	0.003	0.000	0.000	0.000
Wheeled Loader	Frequent or Continuous	Human Response	not perceptible	not perceptible	not perceptible	Not perceptible
Wheeled Loader	Frequent or Continuous	Building Damage Potential	None	none	none	None

* Distance From Operating Equipment Item
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: Tetra Tech analyses based on Caltrans 2004.

As demonstrated by the data in Table 4.10-5, ground vibration from most types of equipment used for solar farm 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 farm vicinity.

Gen-Tie Line A-1

Noise from On-Site Construction Activity. Procedures used to evaluate construction noise impacts for GT-A-1 were the same as described for SF-B, above. The construction noise analysis for the transmission line used the construction emissions spreadsheet modeling analyses described in Section 4.2.2 to identify construction activity phases and associated equipment use. Four of the six construction phases were selected for noise modeling analysis:

- 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 with activity limited to daytime hours consistent with the Riverside County noise ordinance (beginning about 7 am during most of the year, and perhaps starting as early as 6 am during the summer months). Table 4.10-6 summarizes the construction noise analysis results for the five construction phases with the greatest noise generation for GT-A-1.

GT-A-1 would be located on the west side of Kaiser Road from the solar farm 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 3.10-1 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. The four construction phases evaluated above would last about nine months. During that time, construction activity would advance in a linear fashion along the 12.2-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 4.10-6, 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 would temporarily reach about 62 dBA, 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.

Table 4.10-6
Summary of Construction Noise for Gen-Tie Line A-1

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
Site Preparation	Tracked Dozer, Grader, Roller-Compactor, Wheeled Loader, Dump Truck, Water Truck	200	74.1	71.8	68.8
Site Preparation	Tracked Dozer, Grader, Roller-Compactor, Wheeled Loader, Dump Truck, Water Truck	300	70.3	68.1	65.1
Site Preparation	Tracked Dozer, Grader, Roller-Compactor, Wheeled Loader, Dump Truck, Water Truck	500	65.5	63.2	60.2
Site Preparation	Tracked Dozer, Grader, Roller-Compactor, Wheeled Loader, Dump Truck, Water Truck	700	62.1	59.9	56.9
Site Preparation	Tracked Dozer, Grader, Roller-Compactor, Wheeled Loader, Dump Truck, Water Truck	1,000	58.4	56.1	53.1

Table 4.10-6 (continued)
Summary of Construction Noise for Gen-Tie Line A-1

Construction Phase	Typical Equipment	Distance From Construction, feet	Maximum 1-Hour Leq Increment, dBA	Average Daytime Leq Increment, dBA	CNEL Increment, dBA
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
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	200	78.0	73.6	70.6
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	300	74.2	69.9	66.9

Table 4.10-6 (continued)
Summary of Construction Noise for Gen-Tie Line A-1

Construction Phase	Typical Equipment	Distance From Construction, feet	Maximum 1-Hour Leq Increment, dBA	Average Daytime Leq Increment, dBA	CNEL Increment, dBA
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	500	69.3	65.0	62.0
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	700	65.9	61.7	58.7
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	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

Table 4.10-6 (continued)
Summary of Construction Noise for Gen-Tie Line A-1

Construction Phase	Typical Equipment	Distance From Construction, feet	Maximum 1-Hour Leq Increment, dBA	Average Daytime Leq Increment, dBA	CNEL Increment, dBA
Tower Assembly and Erection	Portable Compressor, Forklift, Mobile Crane, Water Truck, Flatbed Truck	200	75.7	71.9	68.8
Tower Assembly and Erection	Portable Compressor, Forklift, Mobile Crane, Water Truck, Flatbed Truck	300	72.0	68.2	65.2
Tower Assembly and Erection	Portable Compressor, Forklift, Mobile Crane, Water Truck, Flatbed Truck	500	67.3	63.4	60.4
Tower Assembly and Erection	Portable Compressor, Forklift, Mobile Crane, Water Truck, Flatbed Truck	700	64.0	60.2	57.2
Tower Assembly and Erection	Portable Compressor, Forklift, Mobile Crane, Water Truck, Flatbed Truck	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
Power Line Stringing	Tracked Dozer, Backhoe, Portable Compressor, Line Puller, Specialty Trucks, Truck Tractor, Water Truck	200	72.7	69.4	66.4

Table 4.10-6 (continued)
Summary of Construction Noise for Gen-Tie Line A-1

Construction Phase	Typical Equipment	Distance From Construction, feet	Maximum 1-Hour Leq Increment, dBA	Average Daytime Leq Increment, dBA	CNEL Increment, dBA
Power Line Stringing	Tracked Dozer, Backhoe, Portable Compressor, Line Puller, Specialty Trucks, Truck Tractor, Water Truck	300	69.0	65.7	62.7
Power Line Stringing	Tracked Dozer, Backhoe, Portable Compressor, Line Puller, Specialty Trucks, Truck Tractor, Water Truck	500	64.3	61.0	57.9
Power Line Stringing	Tracked Dozer, Backhoe, Portable Compressor, Line Puller, Specialty Trucks, Truck Tractor, Water Truck	700	61.0	57.7	54.7
Power Line Stringing	Tracked Dozer, Backhoe, Portable Compressor, Line Puller, Specialty Trucks, Truck Tractor, Water Truck	1,000	57.4	54.1	51.1

Leq = equivalent continuous noise level
CNEL = community noise equivalent level (a 24-hour weighted average)
Source: Tetra Tech analyses

Noise from Construction-Related Traffic. Noise from construction-related traffic for the solar farm site plus GT-A-1 was presented previously in Tables 4.10-3 and 4.10-4. 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 a noise level change 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. In the Lake Tamarisk area, there would be an obvious increase in traffic noise levels within about 100 feet of Kaiser Road, with noticeable changes in traffic noise extending to about 250 feet from Kaiser Road. Locations more than 250 feet from Kaiser Road would not experience a noticeable change in traffic noise conditions. For the area between the solar farm site and the Lake Tamarisk development, there would be an obvious increase in traffic noise levels within about 300 feet of Kaiser Road, with noticeable changes in traffic noise extending to about 800 feet from Kaiser Road. But even at 50 feet from the centerline of Kaiser Road, CNEL levels would still be within Riverside County's normally acceptable range for rural residential land uses.

Noise Impacts to Wildlife. General considerations regarding noise impacts on wildlife were presented previously in connection with the solar farm site. The same general considerations would apply to GT-A-1. About 33 percent of the transmission line corridor would be subject to temporary disturbance during the construction period. About 8 percent of the corridor area would be converted to permanent facility use. Construction noise would be temporary, and would occur only during the few weeks of active construction activities at any given location. Noise from construction of GT-A-1 would have only a temporary impact on wildlife in areas adjacent to the active construction work areas.

Ground Vibrations From Construction Activity. Ground vibration impacts from construction of GT-A-1 were assessed using the same procedures as discussed previously for SF-B. Table 4.10-7 summarizes the ground vibration analysis for construction of GT-A-1.

Table 4.10-7
Ground Vibration Levels for Typical Equipment Used for Construction of Gen-Tie Line A-1

Equipment Type	Vibration Type	Parameter	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
Static Roller-Compactor	Frequent or Continuous	Human Response	distinctly perceptible	barely perceptible	not perceptible	not perceptible
Static Roller-Compactor	Frequent or Continuous	Building Damage Potential	Extremely low	none	none	none
Large Bulldozer	Frequent or Continuous	PPV, in/sec	0.089	0.015	0.006	0.004
Large Bulldozer	Frequent or Continuous	Human Response	distinctly perceptible	barely perceptible	not perceptible	not perceptible
Large Bulldozer	Frequent or Continuous	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
Drill Rig or Auger	Frequent or Continuous	Human Response	distinctly perceptible	barely perceptible	not perceptible	not perceptible
Drill Rig or Auger	Frequent or Continuous	Building Damage Potential	extremely low	none	none	none
Loaded Truck	Single Event	PPV, in/sec	0.076	0.013	0.005	0.003
Loaded Truck	Single Event	Human Response	barely perceptible	not perceptible	not perceptible	not perceptible
Loaded Truck	Single Event	Building Damage Potential	None	none	none	none
Jackhammer	Frequent or Continuous	PPV, in/sec	0.035	0.006	0.002	0.001
Jackhammer	Frequent or Continuous	Human Response	barely perceptible	not perceptible	not perceptible	not perceptible
Jackhammer	Frequent or Continuous	Building Damage Potential	None	none	none	none

Table 4.10-7 (continued)
Ground Vibration Levels for Typical Equipment Used for Construction of Gen-Tie Line A-1

Equipment Type	Vibration Type	Parameter	25 feet*	100 feet*	200 feet*	300 feet*
Small Bulldozer	Frequent or Continuous	PPV, in/sec	0.003	0.000	0.000	0.000
Small Bulldozer	Frequent or Continuous	Human Response	not perceptible	not perceptible	not perceptible	not perceptible
Small Bulldozer	Frequent or Continuous	Building Damage Potential	None	none	none	none
Excavator or Backhoe	Frequent or Continuous	PPV, in/sec	0.003	0.000	0.000	0.000
Excavator or Backhoe	Frequent or Continuous	Human Response	not perceptible	not perceptible	not perceptible	not perceptible
Excavator or Backhoe	Frequent or Continuous	Building Damage Potential	None	none	none	none
Wheeled Loader	Frequent or Continuous	PPV, in/sec	0.003	0.000	0.000	0.000
Wheeled Loader	Frequent or Continuous	Human Response	not perceptible	not perceptible	not perceptible	not perceptible
Wheeled Loader	Frequent or Continuous	Building Damage Potential	None	none	none	none

*Distance From Operating Equipment Item
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: Tetra Tech analyses based on Caltrans 2004.

As demonstrated by the data in Table 4.10-7, ground vibration from most types of equipment used for Gen-Tie Line construction would not be perceptible at distances of 200 feet or more from operating equipment items. 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.

Red Bluff Substation A

Noise from On-Site Construction Activity. Procedures used to evaluate construction noise impacts for Red Bluff Substation A were the same as described for SF-B, above. The construction noise analysis for the substation used the construction emissions spreadsheet modeling analyses described in Section 4.2.2 to identify construction activity phases and associated equipment use. Five of the 11 construction phases were selected for noise modeling analysis:

- Site clearing;

- Site grading and compacting;
- Trenching and foundations
- Equipment pads; and
- Equipment installation.

The other construction phases 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 with activity limited to daytime hours consistent with the Riverside County noise ordinance (beginning about 7 am during most of the year, and perhaps starting as early as 6 am during the summer months). Table 4.10-8 summarizes the construction noise analysis results for the five construction phases with the greatest noise generation for Red Bluff Substation A.

There are no noise-sensitive land uses close to the location proposed for Red Bluff Substation A. As shown in Table 4.10-8, locations 400 feet or more from the construction site would have CNEL increments of less than 60 dBA during the construction period. Maximum 1-hour Leq noise levels would be less than 60 dBA at distances of 800 feet or more from the construction site.

Noise from Construction-Related Traffic. Construction-related traffic for Red Bluff Substation A generally would be limited to I-10 and an unpaved access road. There are no noise-sensitive land uses along either of the alternative access road alignments for Red Bluff Substation A. Construction-related traffic for Red Bluff Substation A would have little effect on noise levels from I-10, since it takes a doubling of traffic volumes to increase traffic noise levels by 3 dBA. There would be limited construction activity and few construction-related vehicle trips at the telecommunication site on Highway 177. Consequently, no traffic noise modeling was conducted for these roadways.

Table 4.10-8
Summary of Construction Noise for the Red Bluff Substation

Construction Phase	Typical Equipment	Distance From Construction, feet	Maximum 1-Hour Leq Increment, dBA	Average Daytime Leq Increment, dBA	CNEL Increment, dBA
Site Clearing	Brush Cutters, Tracked Dozer, Wheeled Tractor, Wheeled Loader, Wood Chipper, Water Truck	100	83.3	80.3	77.3
Site Clearing	Brush Cutters, Tracked Dozer, Wheeled Tractor, Wheeled Loader, Wood Chipper, Water Truck	400	70.6	67.6	64.6
Site Clearing	Brush Cutters, Tracked Dozer, Wheeled Tractor, Wheeled Loader, Wood Chipper, Water Truck	700	65.1	62.1	59.1

Table 4.10-8 (continued)
Summary of Construction Noise for the Red Bluff Substation

Construction Phase	Typical Equipment	Distance From Construction, feet	Maximum 1-Hour Leq Increment, dBA	Average Daytime Leq Increment, dBA	CNEL Increment, dBA
Site Clearing	Brush Cutters, Tracked Dozer, Wheeled Tractor, Wheeled Loader, Wood Chipper, Water Truck	1,000	61.3	58.4	55.3
Site Clearing	Brush Cutters, Tracked Dozer, Wheeled Tractor, Wheeled Loader, Wood Chipper, Water Truck	1,500	56.7	53.7	50.7
Site Clearing	Brush Cutters, Tracked Dozer, Wheeled Tractor, Wheeled Loader, Wood Chipper, Water Truck	2,500	50.0	47.1	44.1
Site Grading and Compacting	Scraper, Tracked Dozer, Grader, Roller-Compactor, Wheeled Loader, Backhoe, Water Truck	100	84.3	80.5	77.5
Site Grading and Compacting	Scraper, Tracked Dozer, Grader, Roller-Compactor, Wheeled Loader, Backhoe, Water Truck	400	71.7	67.9	64.8
Site Grading and Compacting	Scraper, Tracked Dozer, Grader, Roller-Compactor, Wheeled Loader, Backhoe, Water Truck	700	66.2	62.4	59.4
Site Grading and Compacting	Scraper, Tracked Dozer, Grader, Roller-Compactor, Wheeled Loader, Backhoe, Water Truck	1,000	62.4	58.7	55.6
Site Grading and Compacting	Scraper, Tracked Dozer, Grader, Roller-Compactor, Wheeled Loader, Backhoe, Water Truck	1,500	57.9	54.1	51.1
Site Grading and Compacting	Scraper, Tracked Dozer, Grader, Roller-Compactor, Wheeled Loader, Backhoe, Water Truck	2,500	51.3	47.6	44.6
Trenching and Foundations	Excavator, Backhoe, Wheeled Loader, Skid-Steer Loader, Auger Rig, Tracked Dozer, Cement Mixer Truck, Water Truck	100	81.8	77.6	74.6
Trenching and Foundations	Excavator, Backhoe, Wheeled Loader, Skid-Steer Loader, Auger Rig, Tracked Dozer, Cement Mixer Truck, Water Truck	400	69.2	65.1	62.1

Table 4.10-8 (continued)
Summary of Construction Noise for the Red Bluff Substation

Construction Phase	Typical Equipment	Distance From Construction, feet	Maximum 1-Hour Leq Increment, dBA	Average Daytime Leq Increment, dBA	CNEL Increment, dBA
Trenching and Foundations	Excavator, Backhoe, Wheeled Loader, Skid-Steer Loader, Auger Rig, Tracked Dozer, Cement Mixer Truck, Water Truck	700	63.8	59.7	56.6
Trenching and Foundations	Excavator, Backhoe, Wheeled Loader, Skid-Steer Loader, Auger Rig, Tracked Dozer, Cement Mixer Truck, Water Truck	1,000	60.1	56.0	53.0
Trenching and Foundations	Excavator, Backhoe, Wheeled Loader, Skid-Steer Loader, Auger Rig, Tracked Dozer, Cement Mixer Truck, Water Truck	1,500	55.6	51.6	48.6
Trenching and Foundations	Excavator, Backhoe, Wheeled Loader, Skid-Steer Loader, Auger Rig, Tracked Dozer, Cement Mixer Truck, Water Truck	2,500	49.2	45.3	42.3
Installation of Equipment Pads	Wheeled Loader, Mobile Crane, Forklift, Flatbed Truck, Cement Mixer Truck, Dump Truck, Water Truck	100	79.0	75.3	72.3
Installation of Equipment Pads	Wheeled Loader, Mobile Crane, Forklift, Flatbed Truck, Cement Mixer Truck, Dump Truck, Water Truck	400	66.6	62.9	59.9
Installation of Equipment Pads	Wheeled Loader, Mobile Crane, Forklift, Flatbed Truck, Cement Mixer Truck, Dump Truck, Water Truck	700	61.3	57.6	54.6
Installation of Equipment Pads	Wheeled Loader, Mobile Crane, Forklift, Flatbed Truck, Cement Mixer Truck, Dump Truck, Water Truck	1,000	57.8	54.1	51.1
Installation of Equipment Pads	Wheeled Loader, Mobile Crane, Forklift, Flatbed Truck, Cement Mixer Truck, Dump Truck, Water Truck	1,500	53.6	49.9	46.9
Installation of Equipment Pads	Wheeled Loader, Mobile Crane, Forklift, Flatbed Truck, Cement Mixer Truck, Dump Truck, Water Truck	2,500	47.7	44.1	41.1
Installation of Substation Equipment	Mobile Crane, Forklift, Wheeled Loader, Portable Compressor, Dump Truck, Specialty Trucks, Water Truck	100	78.5	75.5	72.5

Table 4.10-8 (continued)
Summary of Construction Noise for the Red Bluff Substation

Construction Phase	Typical Equipment	Distance From Construction, feet	Maximum 1-Hour Leq Increment, dBA	Average Daytime Leq Increment, dBA	CNEL Increment, dBA
Installation of Substation Equipment	Mobile Crane, Forklift, Wheeled Loader, Portable Compressor, Dump Truck, Specialty Trucks, Water Truck	400	66.0	63.0	60.0
Installation of Substation Equipment	Mobile Crane, Forklift, Wheeled Loader, Portable Compressor, Dump Truck, Specialty Trucks, Water Truck	700	60.7	57.7	54.7
Installation of Substation Equipment	Mobile Crane, Forklift, Wheeled Loader, Portable Compressor, Dump Truck, Specialty Trucks, Water Truck	1,000	57.2	54.2	51.2
Installation of Substation Equipment	Mobile Crane, Forklift, Wheeled Loader, Portable Compressor, Dump Truck, Specialty Trucks, Water Truck	1,500	52.9	49.9	46.9
Installation of Substation Equipment	Mobile Crane, Forklift, Wheeled Loader, Portable Compressor, Dump Truck, Specialty Trucks, Water Truck	2,500	46.9	43.9	40.9

Leq = equivalent continuous noise level
CNEL = community noise equivalent level (a 24-hour weighted average)
Source: Tetra Tech analyses

Noise Impacts to Wildlife. General considerations regarding noise impacts to wildlife were presented previously in connection with the solar farm site. The same general considerations would apply to Red Bluff Substation A. Construction of Red Bluff Substation A would eliminate wildlife habitat from the site. Construction noise and visible construction activity would have a temporary effect on wildlife in adjacent undisturbed areas, but noise levels (see Table 4.10-8 above) would not exceed the general range of existing ambient noise levels at distances beyond 200 to 300 feet from the construction site.

Ground Vibrations from Construction Activity. Ground vibration impacts from construction of Red Bluff Substation A were assessed using the same procedures as discussed previously for SF-B. Table 4.10-9 summarizes the ground vibration analysis for construction of Red Bluff Substation A.

Table 4.10-9
Ground Vibration Levels for Typical Equipment Used for Construction of the Red Bluff Substation

Equipment Type	Vibration Type	Parameter	Distance From Operating Equipment Item			
			25 feet	100 feet	200 feet	300 feet
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
		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

Table 4.10-9 (continued)
Ground Vibration Levels for Typical Equipment Used for Construction of the Red Bluff Substation

Equipment Type	Vibration Type	Parameter	Distance From Operating Equipment Item 25 feet	100 feet	200 feet	300 feet
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: Tetra Tech analyses based on Caltrans 2004.

As demonstrated by the data in Table 4.10-9, ground vibration from most types of equipment used for substation construction would not be perceptible at distances of 200 feet or more from operating equipment items. Construction activity at Red Bluff Substation A would not cause perceptible ground vibrations and would pose no risk of cosmetic damage to any existing buildings.

Summary of Construction Impacts

Construction activities at the solar farm site, along the Gen-Tie Line corridor, and at the Red Bluff substation site would generate temporary increases in local noise levels over a period of about 26 months. Construction activities would be limited to daytime hours on weekdays consistent with the Riverside County noise ordinance. On-site noise levels would diminish rapidly with increasing distance from the active construction operations, and would drop to background noise levels over a distance of about ½ mile or less. Construction-related traffic would have almost no impact on noise levels along I-10, limited effects on traffic noise levels along Highway 177 between I-10 and Kaiser Road, and localized effects on traffic noise levels along Kaiser Road. Construction-related traffic would generally occur between 6 am and 4 pm during most months, and perhaps between 5 am and 3 pm during summer months. Noise levels from on-site construction activity and construction-related traffic would not exceed Riverside County land use compatibility standards at existing residences. Temporary noise impacts to wildlife would be limited to the construction sites and immediately adjacent locations. Ground vibrations from construction equipment would not be perceptible at existing residences near the construction sites.

Operation and Maintenance

Solar Farm Layout B

Noise from Facility Operations. Operational activities at the solar farm site would not generate much noise. Identifiable sources of noise would include on-site vehicle and ATV use, PCS station equipment, and the on-site substation. The solar farm would have 10 to 15 on-site employees on any given day. There would be limited amounts of vehicle and ATV traffic on the site, but this vehicle activity would be intermittent, and would not be expected to generate off-site noise impacts.

Inverters and transformers at the PCS stations 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 station would have two inverters housed inside an air-conditioned, pre-fabricated enclosure and one transformer mounted on a concrete pad. Each PCS inverter generate a noise level of about 75 dBA at a distance of 10 feet (Beck 2010a), or about 78 dBA at ten feet for two inverters. The PCS enclosure would provide 15 to 20 dBA of noise reduction, reducing the inverter noise to approximately 63 dBA at a distance of 10 feet from the enclosure. The PCS transformers generate a noise level of about 58 dBA at a distance of six feet (Beck 2010b). For analysis purposes, the overall noise generation from the PCS stations (inverter housing, air conditioner, and transformer) has been estimated at 65 dBA at a distance of 10 feet. 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 stations would be centrally located within each 1 MW array of solar panels, about 240 to 300 feet from the sides of the array. No solar arrays would be within 100 feet of the western property line. Thus, the PCS stations would generate little audible noise beyond the solar farm property line during daytime hour. The PCS stations would not be a source of noise during nighttime hours.

Transformers and related equipment at the on-site substation would be the most important source of operational noise. 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 six feet during the daytime, and 86 dBA at a distance of one foot during nighttime hours (Beck 2010c). 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. 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. The on-site substation would be about 1,100 feet from the closest property line and slightly less than one mile from the closest existing residence. Daytime noise from the on-site substation would generally be close to background noise levels at the closest property line. Nighttime noise from the on-site substation would not be audible beyond the property line.

Noise Impacts to Wildlife. Some birds and other small wildlife species would re-occupy the solar farm site once construction activities are completed, but other wildlife species would be excluded from the site by the perimeter fences. Wildlife population levels for many of those species able to re-occupy the site would be limited by the reduced vegetation cover. Operations at the solar farm site would not generate noise levels high enough to impact on-site or off-site wildlife.

Gen-Tie Line A-1

Noise from Facility Operations. GT-A-1 would have no persistent operational noise generation. Routine transmission line inspection and maintenance activities would occur only a few times a year. Corona discharge during rainstorms normally is associated with higher voltage transmission lines than the proposed 220 kV line (PG&E 2002). SCE has estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line right-of-way (CPUC 2006). Ambient noise levels during rainstorms often exceed this noise level, especially if the rain is accompanied by high winds.

Noise Impacts to Wildlife. There would be no persistent operational noise associated with GT-A-1, and consequently no noise impacts to wildlife.

Red Bluff Substation A

Noise from Facility Operations. Transformers and related electrical equipment at Red Bluff Substation A would be a localized source of operational noise. A 500/220 kV substation proposed by SCE as an optional feature for the Devers-Palo Verde Number 2 transmission line was estimated to produce relatively steady operational noise levels of about 60 dBA at a chain link fence surrounding the substation property (CPUC 2006). A continuous 60 dBA noise source would result in a CNEL level of about 67 dBA. The Red Bluff Substation A site is not located near any noise-sensitive land uses, and would be surrounded by a masonry security wall rather than by a chain link fence. The security wall would reduce off-site operational noise from the substation by an estimated 6 to 8 dBA. Thus, operational noise from Red Bluff Substation A would produce a CNEL level of about 60 dBA outside the substation property. Existing traffic volumes along I-10 are estimated to produce background CNEL levels of about 64 dBA at the north side of the substation location and about 55 dBA at the south side of the substation location.

Noise Impacts to Wildlife. Given the existing influence of I-10 on ambient noise levels in the substation vicinity, operational noise levels from Red Bluff Substation A would not be expected to affect off-site wildlife.

Summary of Operation and Maintenance Impacts

Operational noise levels at the solar farm would be limited to occasional vehicle and ATV use within the site, minor maintenance activities, and low equipment noise from PCS stations and the on-site substation. Noise levels from the on-site PCS stations and on-site substation would be reduced during nighttime hours when the solar farm is not generating electricity. Daytime and nighttime operational noise levels from the solar farm would be comparable to existing background noise levels at the substation property line. Gen-Tie Line A-1 would have no operational noise levels other than the possibility of temporary low corona discharge noise levels during rainstorms. Red Bluff Substation A would generate an operational CNEL level of about 60 dBA outside the substation property line, but there are no noise-sensitive land uses near the substation site.

Decommissioning

Solar Farm Layout B

Noise from Decommissioning Activities. Decommissioning of the solar farm 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 impacts from decommissioning activities at the solar farm site would be similar to, but probably somewhat less than, those previously estimated for construction activities (see Table 4.10-2, 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 impacts from traffic associated with decommissioning activities would likely be somewhat less than the noise levels previously estimated for construction-related traffic (see Tables 4.10-3 and 4.10-4, above).

Noise Impacts to Wildlife. Noise impacts to wildlife during solar farm decommissioning would be similar to those discussed previously with respect to construction activities.

Ground Vibrations from Decommissioning Activity. Ground vibrations generated during solar farm decommissioning would be similar to those previously discussed with respect to construction activities (see Table 4.10-5, above).

Gen-Tie Line A-1

Noise from Decommissioning Activities. Decommissioning of GT-A-1 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. Most of the material removed during decommissioning would likely be recycled. Equipment used for decommissioning would generally be similar to that used for construction. Noise impacts from decommissioning activities of Gen Tie Line A-1 would be similar to, but probably somewhat less than, those previously estimated for construction activities (see Table 4.10-6, 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 impacts from traffic associated with decommissioning activities would likely be somewhat less than the noise levels previously estimated for construction-related traffic (see Tables 4.10-3 and 4.10-4, above).

Noise Impacts to Wildlife. Noise impacts to wildlife during decommissioning of Gen Tie Line A-1 would be similar to those discussed previously with respect to construction activities.

Ground Vibrations from Decommissioning Activity. Ground vibrations generated during decommissioning of Gen Tie Line A-1 would be similar to those previously discussed with respect to construction activities (see Table 4.10-6, above).

Red Bluff Substation A

Noise from Decommissioning Activities. Decommissioning of the Red Bluff Substation would require disassembly of mechanical equipment components, demolition of equipment pads and paving, and removal of perimeter wall. 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 impacts from decommissioning activities at the Red Bluff substation would be similar to those previously estimated for construction activities (see Table 4.10-6, 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. Because traffic volumes associated with decommissioning activities for Red Bluff Substation A would be only a very small fraction of prevailing traffic volumes on I-10, there would be little change in noise levels along I-10 due to decommissioning of the substation.

Noise Impacts to Wildlife. Noise impacts to wildlife during decommissioning of Red Bluff Substation A would be similar to those discussed previously with respect to construction activities.

Ground Vibrations from Decommissioning Activity. Ground vibrations generated during decommissioning of Red Bluff Substation A would be similar to those previously discussed with respect to construction activities (see Table 4.10-7, above).

Summary of Decommissioning Impacts

Noise and vibration impacts of facility decommissioning would be generally similar in nature to those of facility construction, but noise and vibration levels would likely be less than those generated by construction activities. Future changes in vehicle and equipment engine technology would likely result in somewhat lower noise levels than those estimated for construction activity.

Summary of Combined Impacts for Alternative 1

Noise from On-Site Construction Activity. As discussed previously, noise has a very localized region of influence. The analyses presented above for the solar farm, transmission line, and Red Bluff Substation components of Alternative 1 demonstrate the very localized nature of noise impacts. The physical separation between these components of Alternative 1 generally precludes combined noise effects that exceed the effects of the individual project components. The combined noise impacts of facility construction would be identical to the individual noise impacts of facility construction as discussed above for the individual project components.

Noise from Construction-Related Traffic. Construction-related traffic for Solar Farm Layout B and for GT-A-1 would use the same roadways and would have construction periods that overlap. While the construction period for Red Bluff Substation A would overlap with the construction periods for the solar farm and transmission line, construction traffic for the Red Bluff Substation would not use Highway 177 or Kaiser Road. The combined noise effects of construction-related traffic for Solar Farm Layout B and GT-A-1 have been presented previously in Tables 4.10-3 and 4.10-4. The combined construction-related traffic volumes for the solar farm, transmission line, and Red Bluff Substation would add about one percent to the existing daily traffic volume on I-10. This increment of traffic would add only 0.04 dBA to the existing noise levels generated by traffic on I-10, an increment that is clearly not meaningful.

Ground Vibrations from Construction Activity. The physical separation of the facility components for Alternative 1 precludes any meaningful combined ground vibration impacts. Consequently, the ground vibration impacts from the combined components of Alternative 1 would be identical to those discussed under individual project components.

Noise from Facility Operations. The physical separation between the components of Alternative 1 generally precludes combined noise effects that exceed the effects of the individual project components. The combined noise impacts of facility operation would be identical to the individual noise impacts of facility operation as discussed above for the individual project components.

Noise from Facility Decommissioning. The physical separation between the components of Alternative 1 generally precludes combined noise effects that exceed the effects of the individual project components. The combined noise impacts of facility decommissioning would be identical to the individual noise impacts of facility decommissioning as discussed above for the individual project components.

Ground Vibrations from Decommissioning Activity. The physical separation of the facility components for Alternative 1 precludes any meaningful combined ground vibration impacts. Consequently, the ground vibration impacts from the combined components of Alternative 1 would be identical to those discussed under individual project components.

Noise Impacts to Wildlife. The physical separation of the facility components for Alternative 1 precludes any meaningful combined noise impacts. Consequently, the noise impacts to wildlife from construction, operation, and decommissioning of the combined components would be identical to those discussed under individual project components.

Applicant Measures and Mitigation Measures

The following measures have been adopted by Sunlight and SCE to minimize noise impacts associated with the Project:

- AM-NZ-1: Sunlight and SCE would limit most construction activity to daytime hours consistent with Riverside County noise ordinance limitations (beginning about 7 am during most of the year, and perhaps starting as early as 6 am during the summer months). Certain electrical connection activities at the solar farm site would occur at night for safety reasons, but would not require any heavy equipment operations.

- AM-NZ-2: SCE would construct a masonry security wall around the perimeter of the Red Bluff Substation. This wall would also provide localized noise shielding for adjacent areas.

Proposed actions under Alternative 1 would not result in noise or vibration impacts that warrant noise or vibration mitigation measures.

CEQA Significance Determination

Solar Farm Layout B

Criterion NZ-1. Construction activities would generate higher noise levels than construction-related traffic, operational activities, or decommissioning activities at the solar farm site. Maximum 1-hour Leq noise levels associated with construction activities would be about 83 dBA at the solar farm property line and less than 60 dBA at the nearest existing residence. Maximum average noise levels over a construction day would be about 81 dBA at the solar farm property line and less than 60 dBA at the nearest residence. 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 Solar Farm B would not pose a risk of hearing damage at off-site locations, and thus would be a less than significant impact under criterion NZ-1.

Criterion NZ-2. The Solar Farm site would not contain any noise-sensitive land uses. Maximum on-site CNEL increments from construction activity would be about 76 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. On-site operational noise levels at SF-B would be well within Riverside County's normally acceptable range for industrial and utility land uses, and would be within Riverside County's normally acceptable range for rural residential land uses at the property line Consequently construction, operation, and decommissioning of Solar Farm B would not create noise-related land use compatibility problems at on-site locations, and would have a less than significant impact under criterion NZ-2.

Criterion NZ-3. For the residence closest to the solar farm site, maximum CNEL increments from construction activity would be less than 57 dBA, which is within Riverside County's normally acceptable range for rural residential land uses. Construction-related traffic would increase noise levels along Kaiser Road, but resulting CNEL levels would remain within Riverside County's normally acceptable range for rural residential land uses. Solar Farm operational noise levels would be within Riverside County' 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 Solar Farm B would not create noise-related land use compatibility problems at off-site locations, and would have a less than significant impact under criterion NZ-3.

Criterion NZ 4. While overall construction activities would last for about two years, on-site construction activities at the solar farm site would be within ¼-mile of the closest residence for only a small portion of that time. Consequently, on-site construction activities for the solar farm would not constitute long-term sources of noise level increases at noise-sensitive land uses under criterion NZ-4. 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 8.3 dBA at a distance of 50 feet from the roadway centerline, with the CNEL increase dropping to no more than 4.3 dBA at a distance of 500 feet from the roadway centerline. Because CNEL increases would not exceed 10 dBA, construction-related traffic would have a less than significant noise impact under criterion NZ-4. Operational noise levels from the solar farm would not increase existing CNEL levels at any noise-sensitive land uses. Consequently, operational noise levels from the solar farm would be a less than significant impact under criterion NZ-4. Decommissioning noise levels would be similar to but somewhat less than noise levels associated with construction activities. Consequently, noise from solar farm decommissioning would be a less than significant impact under criterion NZ-4.

Criterion NZ 5. Construction and decommissioning activity for the solar farm site would be limited to daytime hours consistent with the Riverside County noise ordinance (beginning about 7 am during most of the year, and perhaps starting as early as 6 am during the summer months). Consequently, construction and decommissioning activity would be exempt from the Riverside County noise ordinance and noise from construction activity at the solar farm site would be a less than significant impact under criterion NZ-5. Operational noise levels at the solar farm site would be less than 45 dBA at the property line during daytime hours, and less than 35 dBA at the property line during nighttime hours. Consequently, operational noise from the solar farm would comply with the noise limits set by the Riverside County noise ordinance for facilities adjacent to rural residential land uses, and would be a less than significant impact under criterion NZ-5.

Criterion NZ-6. Ground vibrations from construction or decommissioning activity would not be perceptible at off-site locations. Operational activities at the solar farm would not generate meaningful ground vibrations. Consequently, ground vibration impacts from solar farm construction, operation, and decommissioning would be less than significant under criterion NZ-6.

Criterion NZ-7. Ground vibrations from construction or decommissioning activity would pose no risk of cosmetic damage to any existing buildings. Operational activities at the solar farm would not generate meaningful ground vibrations. Consequently, ground vibration impacts from solar farm construction, operation, and decommissioning would be less than significant under criterion NZ-7.

Gen-Tie Line A-1

Criterion NZ-1. Construction activities would generate higher noise levels than construction-related traffic, operational activities, or decommissioning activities for Gen Tie Line A-1. 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. 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. 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 Gen Tie Line A-1 would not pose a risk of hearing damage at off-site locations, and thus would be a less than significant impact under criterion NZ-1.

Criterion NZ-2. The Gen Tie Line corridor would not contain any noise sensitive land uses. Maximum CNEL increments from construction activity would be about 77 dBA at the edge of the Gen-Tie Line corridor, which is within Riverside County's conditionally acceptable range for industrial and utility land uses. There would be no persistent operational noise from Gen Tie Line

A-1. Noise from decommissioning activities would be similar to but somewhat less than noise from construction activities. Consequently construction, operation, and decommissioning of Gen Tie Line A-1 would not create noise-related land use compatibility problems at on-site locations, and would have a less than significant impact under criterion NZ-2.

Criterion NZ-3. For the residences closest to the Gen Tie Line corridor, maximum CNEL increments from construction activity would be about 62 dBA, which is within Riverside County's conditionally acceptable range for rural residential land uses. While overall construction activity along Gen Tie Line A-1 would last about eight months, construction activity at any one location would only last a few weeks. Construction-related traffic would increase noise levels along Kaiser Road, but resulting CNEL levels would remain within Riverside County's normally acceptable range for rural residential land uses. There would be no persistent operational noise from Gen Tie Line A-1. Noise from decommissioning activities would be similar to but somewhat less than noise from construction activities. Consequently construction, operation, and decommissioning of Gen Tie Line A-1 would not create noise-related land use compatibility problems at off-site locations, and would have a less than significant impact under criterion NZ-3.

Criterion NZ 4. While overall construction activities would last for about eight months, construction activities along the Gen Tie corridor would be within ¼-mile of any existing residence for only a small portion of that time. Consequently, on-site construction activities for the Gen Tie Line A-1 would not constitute long-term sources of noise level increases at noise-sensitive land uses under criterion NZ-4. 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 8.3 dBA at a distance of 50 feet from the roadway centerline, with the CNEL increase dropping to no more than 4.3 dBA at a distance of 500 feet from the roadway centerline. Because CNEL increases would not exceed 10 dBA, construction-related traffic would have a less than significant noise impact under criterion NZ-4. Gen Tie Line A-1 would not generate any persistent operational noise levels. Consequently, operational noise levels from Gen Tie Line A-1 would be a less than significant impact under criterion NZ-4. Decommissioning noise levels would be similar to but somewhat less than noise levels associated with construction activities. Consequently, noise from Gen Tie Line decommissioning would be a less than significant impact under criterion NZ-4.

Criterion NZ 5. Construction activity for Gen Tie Line A-1 would be limited to daytime hours consistent with the Riverside County noise ordinance (beginning about 7 am during most of the year, and perhaps starting as early as 6 am during the summer months). Consequently, construction activity would be exempt from the Riverside County noise ordinance and noise from construction activity along Gen Tie Line A-1 would be a less than significant impact under criterion NZ-5.

Criterion NZ-6. Ground vibrations from construction or decommissioning activity 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, operation, and decommissioning would be less than significant under criterion NZ-6 and NZ-7.

Criterion NZ-7. Ground vibrations from construction or decommissioning activity 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 under criterion NZ-7.

Red Bluff Substation A

Criterion NZ-1. Construction activities would generate higher noise levels than construction-related traffic, operational activities, or decommissioning activities at Red Bluff Substation A. There are no noise-sensitive land uses near Red Bluff Substation A. Maximum 1-hour Leq noise levels associated with construction activities would be about 68 dBA at a distance of 500 feet from active construction activity. Maximum average noise levels over a construction day would be about 66 dBA at a distance of 500 feet from active construction activity. 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 Red Bluff Substation A would not pose a risk of hearing damage at off-site locations, and thus would be a less than significant impact under criterion NZ-1.

Criterion NZ-2. Maximum CNEL increments from construction activity would be about 78 dBA at a distance of 100 feet from active construction activity. This is within Riverside County's conditionally acceptable range for industrial and utility land uses. Construction-related traffic would have little effect on noise levels along I-10, and there are no noise-sensitive land uses along either of the alternative construction access road corridors. On-site operational noise levels at Red Bluff Substation A would result in an on-site CNEL level of about 67 dBA. This is 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 Red Bluff Substation A would not create noise-related land use compatibility problems at on-site locations, and would have a less than significant impact under criterion NZ-2.

Criterion NZ-3. Red Bluff Substation A is located on and surrounded by BLM land. The Riverside County General plan designation for the substation area is open space – rural. The table of land use compatibility standards in the noise element of the Riverside County General Plan does not include an open space land use designation, but sets a normally acceptable CNEL limit of 75 dBA for agricultural land uses, golf courses, riding stables, and cemeteries. There are no noise-sensitive land uses close to Red Bluff Substation site. Maximum CNEL increments from construction activity would be less than 63 dBA at a distance of 500 feet from active construction activity. Construction-related traffic would have little effect on noise levels along I-10, and there are no noise-sensitive land uses along either of the alternative construction access road corridors. On-site operational noise levels at Red Bluff Substation A would result in an on-site CNEL level of about 67 dBA. The masonry security wall around the substation site would reduce off-site operational noise CNEL levels to about 60 dBA at locations adjacent to the substation site. Noise from decommissioning activities would be similar to but somewhat less than noise from construction activities. Consequently construction, operation, and decommissioning of Red Bluff Substation A would not create noise-related land use compatibility problems at off-site locations, and would have a less than significant impact under criterion NZ-3.

Criterion NZ 4. There are no noise-sensitive land uses close enough to Red Bluff Substation A to be affected by construction, operation, or decommissioning noise. Consequently, Red Bluff Substation A would have a less than significant noise impact under criterion NZ-4.

Criterion NZ 5. Construction activity for the Red Bluff Substation A site would be limited to daytime hours consistent with the Riverside County noise ordinance (beginning about 7 am during most of the year, and perhaps starting as early as 6 am during the summer months). Consequently, construction activity would be exempt from the Riverside County noise ordinance and noise from construction activity at Red Bluff Substation A would be a less than significant impact under criterion NZ-5.

Criterion NZ-6. Ground vibrations from construction or decommissioning activity would not be perceptible at off-site locations. Operational activities at the substation site would not generate meaningful ground vibrations. Consequently, ground vibration impacts from construction, operation, and decommissioning of Red Bluff Substation A would be less than significant under criterion NZ-6.

Criterion NZ-7. Ground vibrations from construction or decommissioning activity would pose no risk of cosmetic damage to any existing buildings. Operational activities at the substation site would not generate meaningful ground vibrations. Consequently, ground vibration impacts from construction, operation, and decommissioning of Red Bluff Substation A would be less than significant under criterion NZ-7.

Unavoidable Adverse Effects

No unavoidable adverse noise or vibration impacts would result from the implementation of Alternative 1.

4.10.4 Alternative 2 – Alternative Action

Construction

Solar Farm Layout B

Noise and vibration impacts from construction activities for Solar Farm Layout B have been presented previously in connection with Alternative 1. Construction noise impacts from Solar Farm Layout B under Alternative 2 would be identical to those presented for Alternative 1.

Gen-Tie Line B-2

The construction activity noise and vibration estimates presented previously for GT-A-1 under Alternative 1 would apply equally to construction activity for GT-B-2 under Alternative 2. GT-A-1 and GT-B-2 would have identical corridors along Kaiser Road from the solar farm site to a location south of the Lake Tamarisk development. The remainder of the GT-B-2 corridor between Kaiser Road and Red Bluff Substation B does not pass close to any existing residences. Therefore, noise and vibration impacts resulting from the construction of GT-B-2 would be essentially the same as those described under Alternative 1 for GT-A-1.

Red Bluff Substation B

The construction-related noise and vibration estimates presented previously for Red Bluff Substation A under Alternative 1 would apply equally to construction activity for Red Bluff Substation B under Alternative 2. Construction activity would generally occur over a standard five-day workweek with activity limited to daytime hours consistent with the Riverside County noise ordinance (beginning about 7 am during most of the year, and perhaps starting as early as 6 am during the summer months). Construction-related traffic for Red Bluff Substation B generally would be limited to I-10 and a short unpaved access road. Construction-related traffic for Red Bluff Substation B would have little effect on noise levels from I-10, since it takes a doubling of traffic volumes to increase traffic noise levels by 3 dBA. There would be limited construction activity and few construction-related vehicle trips at the telecommunication site on Highway 177. Consequently, no traffic noise modeling was conducted for these roadways. There are no noise-sensitive land uses close to the location proposed for Red Bluff Substation B.

Summary of Construction Impacts

Construction activities at the solar farm site, along the Gen-Tie Line corridor, and at the Red Bluff substation site would generate temporary increases in local noise levels over a period of about 26 months. Construction activities would be limited to daytime hours on weekdays consistent with the Riverside County noise ordinance. On-site noise levels would diminish rapidly with increasing distance from the active construction operations, and would drop to background noise levels over a distance of about ½ mile or less. Construction-related traffic would have almost no impact on noise levels along I-10, limited effects on traffic noise levels along Highway 177 between I-10 and Kaiser Road, and localized effects on traffic noise levels along Kaiser Road. Construction-related traffic would generally occur between 6 am and 4 pm during most months, and perhaps between 5 am and 3 pm during summer months. Noise levels from on-site construction activity and construction-related traffic would not exceed Riverside County land use compatibility standards at existing residences. Temporary noise impacts to wildlife would be limited to the construction sites and immediately adjacent locations. Ground vibrations from construction equipment would not be perceptible at existing residences near the construction sites.

Operation and Maintenance

Solar Farm Layout B

Noise impacts from operational activities for Solar Farm Layout B have been presented previously in connection with Alternative 1. Operational noise impacts from Solar Farm Layout B under Alternative 2 would be identical to those presented for Alternative 1.

Gen-Tie Line B-2

Noise from Facility Operations. GT-B-2 would have no persistent operational noise generation. Routine transmission line inspection and maintenance activities would occur only a few times a year. Corona discharge during rainstorms normally is associated with higher voltage transmission lines than the proposed 220 kV line (PG&E 2002). SCE has estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line right-of-way (CPUC 2006). Ambient noise levels during rainstorms often exceed this noise level, especially if the rain is accompanied by high winds.

Noise Impacts to Wildlife. There would be no persistent operational noise associated with GT-B-2. Consequently, operation of GT-B-2 would have no noise impacts on wildlife.

Red Bluff Substation B

Noise from Facility Operations. Transformers and related electrical equipment at Red Bluff Substation B would be a localized source of operational noise. A 500/220 kV substation proposed by SCE as an optional feature for the Devers-Palo Verde Number 2 transmission line was estimated to produce relatively steady operational noise levels of about 60 dBA at a chain link fence surrounding the substation property (CPUC 2006). A continuous 60 dBA noise source would result in a CNEL level of about 67 dBA. The Red Bluff Substation B site is not located near any noise-sensitive land uses, and would be surrounded by a masonry security wall rather than by a chain link fence. The security wall would reduce off-site operational noise from the substation by an estimated 6 to 8 dBA. Thus, operational noise from Red Bluff Substation B would produce a CNEL level of about 60 dBA outside the substation property. Existing traffic volumes along I-10 are estimated to produce background CNEL levels of about 64 dBA at the north side of the substation location and 55 dBA at the south side of the substation location.

Noise Impacts to Wildlife. Given the existing influence of I-10 on ambient noise levels in the substation vicinity, operational noise levels from Red Bluff Substation B would not be expected to affect off-site wildlife.

Summary of Operation and Maintenance Impacts

Operational noise levels at the solar farm would be limited to occasional vehicle and ATV use within the site, minor maintenance activities, and low equipment noise from PCS stations and the on-site substation. Noise levels from the on-site PCS stations and on-site substation would be reduced during nighttime hours when the solar farm is not generating electricity. Daytime and nighttime operational noise levels from the solar farm would be comparable to existing background noise levels at the substation property line. Gen-Tie Line B-2 would have no operational noise levels other than infrequent line inspection and maintenance activity and the possibility of temporary low corona discharge noise levels during rainstorms. Red Bluff Substation B would generate an operational CNEL level of about 60 dBA outside the substation property line, but there are no noise-sensitive land uses near the substation site.

Decommissioning

Solar Farm Layout B

The noise and vibration impacts resulting from decommissioning SF-B under Alternative 2 would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

The noise and vibration impacts resulting from decommissioning GT-B-2 under Alternative 2 would be the same as those discussed for GT-A-1 under Alternative 1.

Red Bluff Substation B

The noise and vibration impacts resulting from decommissioning RB-B under Alternative 2 would be the same as those discussed for RB-A under Alternative 1.

Summary of Decommissioning Impacts

Noise and vibration impacts of facility decommissioning would be generally similar in nature to those of facility construction, but noise and vibration levels would likely be less than those generated by construction activities. Future changes in vehicle and equipment engine technology would likely result in somewhat lower noise levels than those estimated for construction activity.

Summary of Combined Impacts for Alternative 2

Noise from On-Site Construction Activity. As discussed previously, noise has a very localized region of influence. The physical separation between these components of Alternative 2 generally precludes combined noise effects that exceed the effects of the individual project components. The combined noise impacts of facility construction would be identical to the individual noise impacts of facility construction as discussed above for the individual project components.

Noise from Construction-Related Traffic. Construction-related traffic for Solar Farm Layout B and for GT-B-2 would use the same roadways and would have construction periods that overlap. While the construction period for Red Bluff Substation B would overlap with the construction periods for the solar farm and transmission line, construction traffic for the Red Bluff Substation would not use Highway 177 or Kaiser Road. The combined noise effects of construction-related traffic for the solar farm and Gen Tie Line have been presented previously in Tables 4.10-3 and 4.10-4. The combined construction-related traffic volumes for the solar farm, transmission line, and Red Bluff Substation would add about one percent to the existing daily traffic volume on I-10. This increment of traffic would add only 0.04 dBA to the existing noise levels generated by traffic on I-10, an increment that is clearly not meaningful.

Ground Vibrations from Construction Activity. The physical separation of the facility components for Alternative 2 precludes any meaningful combined ground vibration impacts. Consequently, the ground vibration impacts from the combined components of Alternative 2 would be identical to those discussed under individual project components.

Noise from Facility Operations. The physical separation between the components of Alternative 2 generally precludes combined noise effects that exceed the effects of the individual project components. The combined noise impacts of facility operation would be identical to the individual noise impacts of facility operation as discussed above for the individual project components.

Noise from Facility Decommissioning. The physical separation between the components of Alternative 2 generally precludes combined noise effects that exceed the effects of the individual project components. The combined noise impacts of facility decommissioning would be identical to the individual noise impacts of facility decommissioning as discussed above for the individual project components.

Ground Vibrations from Decommissioning Activity. The physical separation of the facility components for Alternative 2 precludes any meaningful combined ground vibration impacts. Consequently, the ground vibration impacts from the combined components of Alternative 2 would be identical to those discussed under individual project components.

Noise Impacts to Wildlife. The physical separation of the facility components for Alternative 2 precludes any meaningful combined noise impacts. Consequently, the noise impacts to wildlife from construction, operation, and decommissioning of the combined components would be identical to those discussed under individual project components.

Applicant Measures and Mitigation Measures

Applicant measures and mitigation measures for Alternative 2 would be the same as those discussed for Alternative 1.

CEQA Significance Determination

<u>Solar Farm Layout B</u>

Criterion NZ-1. Construction activities would generate higher noise levels than construction-related traffic, operational activities, or decommissioning activities at the solar farm site. Maximum 1-hour Leq noise levels associated with construction activities would be about 83 dBA at the solar farm property line and less than 60 dBA at the nearest existing residence. Maximum average noise levels over a construction day would be about 81 dBA at the solar farm property line and less than 60 dBA at the nearest residence. 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 Solar Farm B would not pose a risk of hearing damage at off-site locations, and thus would be a less than significant impact under criterion NZ-1.

Criterion NZ-2. The Solar Farm site would not contain any noise-sensitive land uses. Maximum on-site CNEL increments from construction activity would be about 76 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. On-site operational noise levels at SF-B would be well within Riverside County's normally acceptable range for industrial and utility land uses, and would be within Riverside County's normally acceptable range for rural residential land uses at the property line Consequently construction, operation, and decommissioning of Solar Farm B would not create noise-related land use compatibility problems at on-site locations, and would have a less than significant impact under criterion NZ-2.

Criterion NZ-3. For the residence closest to the solar farm site, maximum CNEL increments from construction activity would be less than 57 dBA, which is within Riverside County's normally acceptable range for rural residential land uses. Construction-related traffic would increase noise levels along Kaiser Road, but resulting CNEL levels would remain within Riverside County's normally acceptable range for rural residential land uses. Solar Farm operational noise levels would be within Riverside County' 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 Solar Farm B would not create noise-related land use compatibility problems at off-site locations, and would have a less than significant impact under criterion NZ-3.

Criterion NZ 4. While overall construction activities would last for about two years, on-site construction activities at the solar farm site would be within ¼-mile of the closest residence for only a small portion of that time. Consequently, on-site construction activities for the solar farm would not constitute long-term sources of noise level increases at noise-sensitive land uses under criterion NZ-4. 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 8.3 dBA at a distance of 50 feet from the roadway centerline, with the CNEL increase dropping to no more than 4.3 dBA at a distance of 500 feet from the roadway centerline. Because CNEL increases would not exceed 10 dBA, construction-related traffic would have a less than significant noise impact under criterion NZ-4. Operational noise levels from the solar farm would not increase existing CNEL levels at any noise-sensitive land uses. Consequently, operational noise levels from the solar farm would be a less than significant impact under criterion NZ-4. Decommissioning noise levels would be similar to but somewhat less than noise levels associated with construction activities. Consequently, noise from solar farm decommissioning would be a less than significant impact under criterion NZ-4.

Criterion NZ 5. Construction and decommissioning activity for the solar farm site would be limited to daytime hours consistent with the Riverside County noise ordinance (beginning about 7 am during most of the year, and perhaps starting as early as 6 am during the summer months). Consequently, construction and decommissioning activity would be exempt from the Riverside County noise ordinance and noise from construction activity at the solar farm site would be a less than significant impact under criterion NZ-5. Operational noise levels at the solar farm site would be less than 45 dBA at the property line during daytime hours, and less than 35 dBA at the property line during nighttime hours. Consequently, operational noise from the solar farm would comply with the noise limits set by the Riverside County noise ordinance for facilities adjacent to rural residential land uses, and would be a less than significant impact under criterion NZ-5.

Criterion NZ-6. Ground vibrations from construction or decommissioning activity would not be perceptible at off-site locations. Operational activities at the solar farm would not generate meaningful ground vibrations. Consequently, ground vibration impacts from solar farm construction, operation, and decommissioning would be less than significant under criterion NZ-6.

Criterion NZ-7. Ground vibrations from construction or decommissioning activity would pose no risk of cosmetic damage to any existing buildings. Operational activities at the solar farm would not generate meaningful ground vibrations. Consequently, ground vibration impacts from solar farm construction, operation, and decommissioning would be less than significant under criterion NZ-7.

Gen-Tie Line B-2

Criterion NZ-1. Construction activities would generate higher noise levels than construction-related traffic, operational activities, or decommissioning activities for Gen Tie Line B-2. 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. 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. 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 Gen Tie Line B-2 would not pose a risk of hearing damage at off-site locations, and thus would be a less than significant impact under criterion NZ-1.

Criterion NZ-2. The Gen Tie Line corridor would not contain any noise sensitive land uses. Maximum CNEL increments from construction activity would be about 77 dBA at the edge of the Gen-Tie Line corridor, which is within Riverside County's conditionally acceptable range for industrial and utility land uses. There would be no persistent operational noise from Gen Tie Line B-2. Noise from decommissioning activities would be similar to but somewhat less than noise from construction activities. Consequently construction, operation, and decommissioning of Gen Tie Line B-2 would not create noise-related land use compatibility problems at on-site locations, and would have a less than significant impact under criterion NZ-2.

Criterion NZ-3. For the residences closest to the Gen Tie Line corridor, maximum CNEL increments from construction activity would be about 62 dBA, which is within Riverside County's conditionally acceptable range for rural residential land uses. While overall construction activity along Gen Tie Line B-2 would last about eight months, construction activity at any one location would only last a few weeks. Construction-related traffic would increase noise levels along Kaiser Road, but resulting CNEL levels would remain within Riverside County's normally acceptable range for rural residential land uses. There would be no persistent operational noise from Gen Tie Line B-2. Noise from decommissioning activities would be similar to but somewhat less than noise from construction activities. Consequently construction, operation, and decommissioning of Gen Tie Line B-2 would not create noise-related land use compatibility problems at off-site locations, and would have a less than significant impact under criterion NZ-3.

Criterion NZ 4. While overall construction activities would last for about eight months, construction activities along the Gen Tie corridor would be within ¼-mile of any existing residence for only a small portion of that time. Consequently, on-site construction activities for the Gen Tie Line B-2 would not constitute long-term sources of noise level increases at noise-sensitive land uses under criterion NZ-4. 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 8.3 dBA at a distance of 50 feet from the roadway centerline, with the CNEL increase dropping to no more than 4.3 dBA at a distance of 500 feet from the roadway centerline. Because CNEL increases would not exceed 10 dBA, construction-related traffic would have a less than significant noise impact under criterion NZ-4. Gen Tie Line B-2 would not generate any persistent operational noise levels. Consequently, operational noise levels from Gen Tie Line B-2 would be a less than significant impact under criterion NZ-4. Decommissioning noise levels would be similar to but somewhat less than noise levels associated with construction activities. Consequently, noise from Gen Tie Line decommissioning would be a less than significant impact under criterion NZ-4.

Criterion NZ 5. Construction activity for Gen Tie Line B-2 would be limited to daytime hours consistent with the Riverside County noise ordinance (beginning about 7 am during most of the year, and perhaps starting as early as 6 am during the summer months). Consequently, construction activity would be exempt from the Riverside County noise ordinance and noise from construction activity along Gen Tie Line B-2 would be a less than significant impact under criterion NZ-5.

Criterion NZ-6. Ground vibrations from construction or decommissioning activity 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, operation, and decommissioning would be less than significant under criterion NZ-6 and NZ-7.

Criterion NZ-7. Ground vibrations from construction or decommissioning activity 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 under criterion NZ-7.

Red Bluff Substation B

Criterion NZ-1. Construction activities would generate higher noise levels than construction-related traffic, operational activities, or decommissioning activities at Red Bluff Substation B. There are no noise-sensitive land uses near Red Bluff Substation B. Maximum 1-hour Leq noise levels associated with construction activities would be about 68 dBA at a distance of 500 feet from active construction activity. Maximum average noise levels over a construction day would be about 66 dBA at a distance of 500 feet from active construction activity. 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 Red Bluff Substation B would not pose a risk of hearing damage at off-site locations, and thus would be a less than significant impact under criterion NZ-1.

Criterion NZ-2. Maximum CNEL increments from construction activity would be about 78 dBA at a distance of 100 feet from active construction activity. This is within Riverside County's conditionally acceptable range for industrial and utility land uses. Construction-related traffic would have little effect on noise levels along I-10, and there are no noise-sensitive land uses along either of the alternative construction access road corridors. On-site operational noise levels at Red Bluff Substation B would result in an on-site CNEL level of about 67 dBA. This is 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 Red Bluff Substation B would not create noise-related land use compatibility problems at on-site locations, and would have a less than significant impact under criterion NZ-2.

Criterion NZ-3. Red Bluff Substation B is located on and surrounded by BLM land. The Riverside County General plan designation for the substation area is open space – rural. The table of land use compatibility standards in the noise element of the Riverside County General Plan does not include an open space land use designation, but sets a normally acceptable CNEL limit of 75 dBA for agricultural land uses, golf courses, riding stables, and cemeteries. There are no noise-sensitive land uses close to Red Bluff Substation site. Maximum CNEL increments from construction activity would be less than 63 dBA at a distance of 500 feet from active construction activity. Construction-related traffic would have little effect on noise levels along I-10, and there are no noise-sensitive land uses along either of the alternative construction access road corridors. On-site operational noise levels at Red Bluff Substation B would result in an on-site CNEL level of about 67 dBA. The masonry security wall around the substation site would reduce off-site operational noise CNEL levels to about 60 dBA at locations adjacent to the substation site. Noise from decommissioning activities would be similar to but somewhat less than noise from construction activities. Consequently construction, operation, and decommissioning of Red Bluff Substation B would not create noise-related land use compatibility problems at off-site locations, and would have a less than significant impact under criterion NZ-3.

Criterion NZ 4. There are no noise-sensitive land uses close enough to Red Bluff Substation B to be affected by construction, operation, or decommissioning noise. Consequently, Red Bluff Substation B would have a less than significant noise impact under criterion NZ-4.

Criterion NZ 5. Construction activity for the Red Bluff Substation B site would be limited to daytime hours consistent with the Riverside County noise ordinance (beginning about 7 am during most of the year, and perhaps starting as early as 6 am during the summer months). Consequently, construction activity would be exempt from the Riverside County noise ordinance and noise from construction activity at the Red Bluff Substation site would be a less than significant impact under criterion NZ-5.

Criterion NZ-6. Ground vibrations from construction or decommissioning activity would not be perceptible at off-site locations. Operational activities at the substation site would not generate meaningful ground vibrations. Consequently, ground vibration impacts from construction, operation, and decommissioning of Red Bluff Substation B would be less than significant under criterion NZ-6.

Criterion NZ-7. Ground vibrations from construction or decommissioning activity would pose no risk of cosmetic damage to any existing buildings. Operational activities at the substation site would not generate meaningful ground vibrations. Consequently, ground vibration impacts from construction, operation, and decommissioning of Red Bluff Substation B would be less than significant under criterion NZ-7.

Unavoidable Adverse Effects

No unavoidable adverse noise or vibration impacts would result from the implementation of Alternative 2.

4.10.5 Alternative 3 – Reduced Footprint Alternative

Construction

Solar Farm Layout C

Noise from On-Site Construction Activity. Solar Farm Layout C would be smaller than Solar Farm Layout B discussed under Alternatives 1 and 2, but construction activities would occur on the same schedule as for Solar Farm Layout B and would require the same types of equipment. The size of the area disturbed on a given day would be smaller under Alternative 3 than under Alternatives 1 and 2. While total numbers of some equipment items would be less under Alternative 3 than under Alternatives 1 or 2, similar types and numbers of equipment items would typically be operating in proximity under Alternatives 1, 2, and 3. For noise analysis purposes, it has been assumed that the number and types of equipment operating in proximity for Solar Farm Layout C would be the same as analyzed for Solar Farm Layout B.

As indicated previously in Table 4.10-2, daytime construction activity at the solar farm site would not generate significant noise impacts at any nearby residence. For the residence closest to the solar farm site, maximum CNEL increments from construction activity would be less than 57 dBA, which is within the normally acceptable range for rural residential land uses. Maximum 1-hour Leq noise levels at this location would be about 59 dBA. While this would be higher than expected average background noise conditions, it is comparable to noise levels that would occur naturally during periods with strong winds. Construction activity would generally occur over a standard five-day workweek with activity limited to daytime hours consistent with the Riverside County noise ordinance (beginning about 7 am during most of the year, and perhaps starting as early as 6 am during the summer months).

Noise from Construction-Related Traffic. Solar Farm Layout C under Alternative 3 would require less construction material, fewer construction-related truck trips, and slightly fewer construction workers than Solar Farm Layout B under Alternatives 1 and 2. Construction-related traffic noise for the solar farm and transmission line under Alternative 3 were modeled using the same procedures discussed for Alternative 1.

Table 4.10-10 summarizes CNEL levels from 2011 and 2012 construction traffic, and Table 4.10-11 summarizes maximum 1-hour Leq noise levels from 2011 and 2012 construction traffic.

As shown in Tables 4.10-10 and 4.10-11, construction-related traffic noise would be somewhat higher during 2011 than during 2012. Because there would be little construction-related traffic after 2012, traffic noise conditions would return to existing levels in 2013. 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. At greater distances from I-10, noise from construction-related traffic would have a greater influence on overall traffic noise conditions. Most people cannot detect noise level changes of less than 1.5 to 2 dBA, but find changes of 3 to 5 dBA to be noticeable, and changes of 5 dBA or more to be obvious. In the Lake Tamarisk area, there would be an obvious increase in traffic noise levels within about 100 feet of Kaiser Road, with noticeable changes in traffic noise extending to about 250 feet from Kaiser Road. Locations more than 250 feet from Kaiser Road would not experience a noticeable change in traffic noise conditions. But even at 50 feet from the centerline of Kaiser Road, CNEL levels would still be within the normally acceptable range for rural residential land uses.

Table 4.10-10
Modeled CNEL Noise Levels from Construction Traffic, Solar Farm Layout C and Gen-Tie Line A-2

Location	Distance from Road Centerline, feet	Existing CNEL, dBA	2011 CNEL, dBA	2012 CNEL, dBA	2011 Change from Existing, dBA	2012 Change from Existing, dBA
Desert Center, West Side of Highway 177	50	66.9	67.4	67.2	0.5	0.3
Desert Center, West Side of Highway 177	100	66.1	66.4	66.3	0.3	0.2
Desert Center, West Side of Highway 177	250	65.8	65.9	65.8	0.1	0.0
Desert Center, West Side of Highway 177	500	65.6	65.8	65.7	0.2	0.1
Desert Center, West Side of Highway 177	750	65.6	65.7	65.7	0.1	0.1
Desert Center, West Side of Highway 177	1,000	65.6	65.7	65.6	0.1	0.0
Desert Center, East Side of Highway 177	50	66.9	67.5	67.3	0.6	0.4
Desert Center, East Side of Highway 177	100	66.2	66.5	66.4	0.3	0.2
Desert Center, East Side of Highway 177	250	65.9	66.1	66.0	0.2	0.1
Desert Center, East Side of Highway 177	500	66.0	66.1	66.0	0.1	0.0

Table 4.10-10 (continued)
Modeled CNEL Noise Levels from Construction Traffic, Solar Farm Layout C and Gen-Tie Line A-2

Location	Distance from Road Centerline, feet	Existing CNEL, dBA	2011 CNEL, dBA	2012 CNEL, dBA	2011 Change from Existing, dBA	2012 Change from Existing, dBA
Desert Center, East Side of Highway 177	750	66.0	66.1	66.0	0.1	0.0
Desert Center, East Side of Highway 177	1,000	66.0	66.1	66.0	0.1	0.0
Lake Tamarisk, West Side of Kaiser Road	50	51.9	58.5	57.3	6.6	5.4
Lake Tamarisk, West Side of Kaiser Road	100	48.0	53.6	52.5	5.6	4.5
Lake Tamarisk, West Side of Kaiser Road	250	44.7	47.4	46.8	2.7	2.1
Lake Tamarisk, West Side of Kaiser Road	500	43.9	45.1	44.7	1.2	0.8
Lake Tamarisk, West Side of Kaiser Road	750	43.7	44.4	44.2	0.7	0.5
Lake Tamarisk, West Side of Kaiser Road	1,000	43.6	44.1	43.9	0.5	0.3
Lake Tamarisk, East Side of Kaiser Road	50	51.9	58.5	57.3	6.6	5.4
Lake Tamarisk, East Side of Kaiser Road	100	48.0	53.6	52.5	5.6	4.5
Lake Tamarisk, East Side of Kaiser Road	250	44.7	47.5	46.8	2.8	2.1
Lake Tamarisk, East Side of Kaiser Road	500	43.9	45.1	44.7	1.2	0.8

Table 4.10-10 (continued)
Modeled CNEL Noise Levels from Construction Traffic, Solar Farm Layout C and Gen-Tie Line A-2

Location	Distance from Road Centerline, feet	Existing CNEL, dBA	2011 CNEL, dBA	2012 CNEL, dBA	2011 Change from Existing, dBA	2012 Change from Existing, dBA
Lake Tamarisk, East Side of Kaiser Road	750	43.7	44.4	44.2	0.7	0.5
Lake Tamarisk, East Side of Kaiser Road	1,000	43.6	44.1	43.9	0.5	0.3
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	50	49.9	58.0	56.6	8.1	6.7
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	100	45.1	52.8	51.5	7.7	6.4
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	250	39.0	45.2	44.0	6.2	5.0
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	500	36.6	40.6	39.7	4.0	3.1
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	750	35.9	38.7	38.0	2.8	2.1
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	1,000	35.4	37.4	36.9	2.0	1.5

Table 4.10-10 (continued)
Modeled CNEL Noise Levels from Construction Traffic, Solar Farm Layout C and Gen-Tie Line A-2

Location	Distance from Road Centerline, feet	Existing CNEL, dBA	2011 CNEL, dBA	2012 CNEL, dBA	2011 Change from Existing, dBA	2012 Change from Existing, dBA
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	50	49.9	58.0	56.6	8.1	6.7
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	100	45.1	52.8	51.5	7.7	6.4
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	250	39.0	45.2	44.0	6.2	5.0
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	500	36.6	40.6	39.7	4.0	3.1
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	750	35.9	38.7	38.0	2.8	2.1
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	1,000	35.5	37.4	36.9	1.9	1.4

CNEL = community noise equivalent level (a 24-hour weighted average)

Source: Tetra Tech analyses

Table 4.10-11
Modeled Maximum 1-Hour Leq Noise Levels from Construction Traffic, Solar Farm Layout C and Gen-Tie Line A-2

Location	Distance from Road Centerline, feet	Existing Maximum 1-Hour Leq, dBA	2011 Maximum 1-Hour Leq, dBA	2012 Maximum 1-Hour Leq, dBA	2011 Change from Existing, dBA	2012 Change from Existing, dBA
Desert Center, West Side of Highway 177	50	71.0	71.2	71.1	0.2	0.1
Desert Center, West Side of Highway 177	100	70.3	70.4	70.4	0.1	0.1
Desert Center, West Side of Highway 177	250	70.0	70.0	70.0	0.0	0.0
Desert Center, West Side of Highway 177	500	69.9	69.9	69.9	0.0	0.0
Desert Center, West Side of Highway 177	750	69.8	69.8	69.9	0.0	0.1
Desert Center, West Side of Highway 177	1,000	69.8	69.8	69.8	0.0	0.0
Desert Center, East Side of Highway 177	50	71.0	71.2	71.1	0.2	0.1
Desert Center, East Side of Highway 177	100	70.4	70.5	70.5	0.1	0.1
Desert Center, East Side of Highway 177	250	70.2	70.2	70.3	0.0	0.1
Desert Center, East Side of Highway 177	500	70.3	70.3	70.3	0.0	0.0
Desert Center, East Side of Highway 177	750	70.3	70.3	70.3	0.0	0.0
Desert Center, East Side of Highway 177	1,000	70.3	70.3	70.3	0.0	0.0
Lake Tamarisk, West Side of Kaiser Road	50	53.4	60.3	59.0	6.9	5.6
Lake Tamarisk, West Side of Kaiser Road	100	50.3	55.5	54.5	5.2	4.2

Table 4.10-11 (continued)
Modeled Maximum 1-Hour Leq Noise Levels from Construction Traffic, Solar Farm Layout C and Gen-Tie Line A-2

Location	Distance from Road Centerline, feet	Existing Maximum 1-Hour Leq, dBA	2011 Maximum 1-Hour Leq, dBA	2012 Maximum 1-Hour Leq, dBA	2011 Change from Existing, dBA	2012 Change from Existing, dBA
Lake Tamarisk, West Side of Kaiser Road	250	48.4	50.2	49.7	1.8	1.3
Lake Tamarisk, West Side of Kaiser Road	500	48.0	48.7	48.5	0.7	0.5
Lake Tamarisk, West Side of Kaiser Road	750	47.9	48.3	48.2	0.4	0.3
Lake Tamarisk, West Side of Kaiser Road	1,000	47.8	48.1	48.0	0.3	0.2
Lake Tamarisk, East Side of Kaiser Road	50	53.4	60.3	59.0	6.9	5.6
Lake Tamarisk, East Side of Kaiser Road	100	50.3	55.5	54.5	5.2	4.2
Lake Tamarisk, East Side of Kaiser Road	250	48.4	50.2	49.7	1.8	1.3
Lake Tamarisk, East Side of Kaiser Road	500	48.0	48.8	48.5	0.8	0.5
Lake Tamarisk, East Side of Kaiser Road	750	47.9	48.3	48.2	0.4	0.3
Lake Tamarisk, East Side of Kaiser Road	1,000	47.9	48.1	48.0	0.2	0.1
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	50	50.8	59.7	58.2	8.9	7.4

Table 4.10-11 (continued)
Modeled Maximum 1-Hour Leq Noise Levels from Construction Traffic, Solar Farm Layout C and Gen-Tie Line A-2

Location	Distance from Road Centerline, feet	Existing Maximum 1-Hour Leq, dBA	2011 Maximum 1-Hour Leq, dBA	2012 Maximum 1-Hour Leq, dBA	2011 Change from Existing, dBA	2012 Change from Existing, dBA
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	100	46.2	54.5	53.0	8.3	6.8
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	250	41.4	46.8	45.6	5.4	4.2
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	500	40.0	43.3	42.4	3.3	2.4
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	750	39.6	41.7	41.1	2.1	1.5
Between Lake Tamarisk and Solar Farm Site, West Side of Kaiser Road	1,000	39.4	40.6	40.2	1.2	0.8
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	50	50.8	59.7	58.2	8.9	7.4
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	100	46.2	54.5	53.0	8.3	6.8
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	250	41.4	46.8	45.6	5.4	4.2

Table 4.10-11 (continued)
Modeled Maximum 1-Hour Leq Noise Levels from Construction Traffic, Solar Farm Layout C and Gen-Tie Line A-2

Location	Distance from Road Centerline, feet	Existing Maximum 1-Hour Leq, dBA	2011 Maximum 1-Hour Leq, dBA	2012 Maximum 1-Hour Leq, dBA	2011 Change from Existing, dBA	2012 Change from Existing, dBA
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	500	40.0	43.3	42.4	3.3	2.4
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	750	39.6	41.7	41.1	2.1	1.5
Between Lake Tamarisk and Solar Farm Site, East Side of Kaiser Road	1,000	39.4	40.6	40.2	1.2	0.8

Leq = equivalent continuous noise level

Source: Tetra Tech analyses

For the area between the Lake Tamarisk development and the solar farm site, there would be an obvious increase in traffic noise levels within about 300 feet of Kaiser Road, with noticeable changes in traffic noise extending to about 800 feet from Kaiser Road. But even at 50 feet from the centerline of Kaiser Road, CNEL levels would still be within the normally acceptable range for rural residential land uses.

Noise Impacts to Wildlife. Noise impacts to wildlife from Solar Farm Layout C under Alternative 3 would be essentially the same as those discussed for Solar Farm Layout B under Alternatives 1 and 2, although a smaller acreage of wildlife habitat would be converted to solar farm use. Clearing, grading, and soil compacting activities during construction of the solar farm would eliminate most on-site wildlife habitat values, and would eliminate or force most vertebrate wildlife from the site. Construction-related noise levels would not be high enough at off-site locations to cause purely noise-related impacts to wildlife. Thus, noise impacts to wildlife from on-site construction activity would be limited to wildlife remaining in portions of the overall construction area that have not yet experienced active disturbance by construction equipment.

Ground Vibrations from Construction Activity. Ground vibration impacts from construction activities for Solar Farm Layout C would be the same as presented previously in connection with Solar Farm Layout B under Alternative 1.

Gen-Tie Line A-2

Noise from On-Site Construction Activity. The construction activity noise estimates presented previously for GT-A-1 under Alternative 1 would apply equally to construction activity for GT-A-2 under Alternative 3. GT-A-2, however, does not appear to pass within 1,000 feet of any exiting residence. As indicated previously in Table 4.10-5, 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. Locations at greater distances generally would not notice noise from the transmission line construction activity. Construction activity for the transmission line would be limited to daytime hours consistent with the Riverside County noise ordinance (beginning about 7 am during most of the year, and perhaps starting as early as 6 am during the summer months).

Noise from Construction-Related Traffic. The construction-related traffic noise estimates for the combination of Solar Farm C and GT-A-2 were presented previously in Tables 4.10-9 and 4.10-10. 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 changes of 3 to 5 dBA to be noticeable, and 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. In the Lake Tamarisk area, there would be an obvious increase in traffic noise levels within about 100 feet of Kaiser Road, with noticeable changes in traffic noise extending to about 250 feet from Kaiser Road. Locations more than 250 feet from Kaiser Road would not experience a noticeable change in traffic noise conditions. For the area between the solar farm site and the Lake Tamarisk development, there would be an obvious increase in traffic noise levels within about 300 feet of Kaiser Road, with noticeable changes in traffic noise extending to about 800 feet from Kaiser Road. But even at 50 feet from the centerline of Kaiser Road, CNEL levels would still be within the normally acceptable range for rural residential land uses.

Noise Impacts to Wildlife. General considerations regarding noise impacts on wildlife were presented previously in connection with the solar farm site under Alternative 1. The same general considerations would apply to GT-A-2. About 34 percent of the transmission line corridor would be subject to temporary disturbance during the construction period, and about 12 percent of the corridor would be converted to permanent facility use. Construction noise would be temporary, and would occur only during the few weeks of active construction activities at any given location. Noise from construction of GT-A-2 would have only a temporary impact on wildlife in areas adjacent to the active construction work areas.

Ground Vibrations from Construction Activity. The construction-related ground vibration estimates presented previously for GT-A-1 under Alternative 1 would apply equally to construction-related ground vibration for GT-A-2 under Alternative 3. As demonstrated previously by the data in Table 4.10-7, ground vibration from most types of equipment used for Gen-Tie Line construction would not be perceptible at distances of 200 feet or more from operating equipment items. 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.

Red Bluff Substation A

Construction site noise and vibration estimates for Red Bluff Substation A under Alternative 3 would be the same as discussed previously under Alternative 1. Construction activity would generally occur over a standard five-day workweek with activity limited to daytime hours consistent with the Riverside County noise ordinance (beginning about 7 am during most of the year, and perhaps starting as early as 6 am during the summer months). Construction-related traffic for Red Bluff Substation A under Alternative 3 also would be the same as discussed previously under Alternative 1. There are no noise-sensitive land uses near the substation site or along either of the alternative access road corridors to Red Bluff Substation A.

Summary of Construction Impacts

Construction activities at the solar farm site, along the Gen-Tie Line corridor, and at the Red Bluff substation site would generate temporary increases in local noise levels over a period of about 26 months. Construction activities would be limited to daytime hours on weekdays consistent with the Riverside County noise ordinance. On-site noise levels would diminish rapidly with increasing distance from the active construction operations, and would drop to background noise levels over a distance of about ½ mile or less. Construction-related traffic would have almost no impact on noise levels along I-10, limited effects on traffic noise levels along Highway 177 between I-10 and Kaiser Road, and localized effects on traffic noise levels along Kaiser Road. Construction-related traffic would generally occur between 6 am and 4 pm during most months, and perhaps between 5 am and 3 pm during summer months. Noise levels from on-site construction activity and construction-related traffic would not exceed Riverside County land use compatibility standards at existing residences. Temporary noise impacts to wildlife would be limited to the construction sites and immediately adjacent locations. Ground vibrations from construction equipment would not be perceptible at existing residences near the construction sites.

Operation and Maintenance

Solar Farm Layout C

Noise from Facility Operations. Operational noise from Solar Farm Layout C under Alternative 3 would be essentially the same as that discussed for Solar Farm Layout B under Alternatives 1 and 2. Noise levels from solar farm 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 residence.

Noise Impacts to Wildlife. Some birds and other small wildlife species would re-occupy the solar farm site once construction activities are completed, but other wildlife species would be excluded from the site by the perimeter fences. Wildlife population levels for many of those species able to re-occupy the site would be limited by the reduced vegetation cover. Operations at the solar farm site would not generate noise levels high enough to impact on-site or off-site wildlife.

Gen-Tie Line A-2

Noise from Facility Operations. GT-A-2 would have no persistent operational noise generation. Routine transmission line inspection and maintenance activities would occur only a few times a year. Corona discharge during rainstorms normally is associated with higher voltage transmission lines than the proposed 220 kV line (PG&E 2002). SCE has estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line right-of-way (CPUC 2006). Ambient noise levels during rainstorms often exceed this noise level, especially if the rain is accompanied by high winds.

Noise Impacts to Wildlife. There would be no persistent operational noise associated with GT-A-2. Consequently, no impacts to wildlife would result from the operational noise associated with GT-A-2.

Red Bluff Substation A

The impacts resulting from operating and maintaining Red Bluff Substation A under Alternative 3 would be the same as those discussed under Alternative 1.

Summary of Operation and Maintenance Impacts

Operational noise levels at the solar farm would be limited to occasional vehicle and ATV use within the site, minor maintenance activities, and low equipment noise from PCS stations and the on-site substation. Noise levels from the on-site PCS stations and on-site substation would be reduced during nighttime hours when the solar farm is not generating electricity. Daytime and nighttime operational noise levels from the solar farm would be comparable to existing background noise levels at the substation property line. Gen-Tie Line A-2 would have no operational noise levels other than infrequent line inspection and maintenance activity and the possibility of temporary low corona discharge noise levels during rainstorms. Red Bluff Substation A would generate an operational CNEL level of about 60 dBA outside the substation property line, but there are no noise-sensitive land uses near the substation site.

Decommissioning

Solar Farm Layout B

The noise and vibration impacts resulting from decommissioning SF-C under Alternative 3 would be the same as those discussed under Alternative 1.

Gen-Tie Line A-2

The noise and vibration impacts resulting from decommissioning GT-A-2 under Alternative 3 would be the same as those discussed for GT-A-1 under Alternative 1.

Red Bluff Substation A

The noise and vibration impacts resulting from decommissioning RB-A under Alternative 3 would be the same as those discussed for RB-A under Alternative 1.

Summary of Decommissioning Impacts

Noise and vibration impacts of facility decommissioning would be generally similar in nature to those of facility construction, but noise and vibration levels would likely be less than those generated by construction activities. Future changes in vehicle and equipment engine technology would likely result in somewhat lower noise levels than those estimated for construction activity.

Summary of Combined Impacts for Alternative 3

Noise from On-Site Construction Activity. As discussed previously, noise has a very localized region of influence. The physical separation between these components of Alternative 3 generally precludes combined noise effects that exceed the effects of the individual project components. The combined noise impacts of facility construction would be identical to the individual noise impacts of facility construction as discussed above for the individual project components.

Noise from Construction-Related Traffic. Construction-related traffic for Solar Farm Layout C and for GT-A-2 would use the same roadways and would have construction periods that overlap. While the construction period for Red Bluff Substation A would overlap with the construction periods for the solar farm and transmission line, construction traffic for the Red Bluff Substation would not use Highway 177 or Kaiser Road. The combined noise effects of construction-related traffic for the solar farm and Gen Tie Line were presentedpreviously in Tables 4.10-9 and 4.10-10. The combined construction-related traffic volumes for the solar farm, transmission line, and Red Bluff Substation would add about one percent to the existing daily traffic volume on I-10. This increment of traffic would add only 0.04 dBA to the existing noise levels generated by traffic on I-10, an increment that is clearly not meaningful.

Ground Vibrations from Construction Activity. The physical separation of the facility components for Alternative 3 precludes any meaningful combined ground vibration impacts. Consequently, the ground vibration impacts from the combined components of Alternative 3 would be identical to those discussed under individual project components.

Noise from Facility Operations. The physical separation between the components of Alternative 3 generally precludes combined noise effects that exceed the effects of the individual project components. The combined noise impacts of facility operation would be identical to the individual noise impacts of facility operation as discussed above for the individual project components.

Noise from Facility Decommissioning. The physical separation between the components of Alternative 3 generally precludes combined noise effects that exceed the effects of the individual project components. The combined noise impacts of facility decommissioning would be identical to the individual noise impacts of facility decommissioning as discussed above for the individual project components.

Ground Vibrations from Decommissioning Activity. The physical separation of the facility components for Alternative 3 precludes any meaningful combined ground vibration impacts. Consequently, the ground vibration impacts from the combined components of Alternative 3 would be identical to those discussed under individual project components.

Noise Impacts to Wildlife. The physical separation of the facility components for Alternative 3 precludes any meaningful combined noise impacts. Consequently, the noise impacts to wildlife from construction, operation, and decommissioning of the combined components would be identical to those discussed under individual project components.

Applicant Measures and Mitigation Measures

Applicant measures and mitigation measures for Alternative 3 would be the same as those discussed for Alternative 1.

CEQA Significance Determination

Solar Farm Layout C

Criterion NZ-1. Construction activities would generate higher noise levels than construction-related traffic, operational activities, or decommissioning activities at the solar farm site. Maximum 1-hour Leq noise levels associated with construction activities would be about 83 dBA at the solar farm property line and less than 60 dBA at the nearest existing residence. Maximum average noise levels over a construction day would be about 81 dBA at the solar farm property line and less than 60 dBA at the nearest residence. 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 Solar Farm C would not pose a risk of hearing damage at off-site locations, and thus would be a less than significant impact under criterion NZ-1.

Criterion NZ-2. The Solar Farm site would not contain any noise-sensitive land uses. Maximum on-site CNEL increments from construction activity would be about 76 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. On-site operational noise levels at SF-B would be well within Riverside County's normally acceptable range for industrial and utility land uses, and would be within Riverside County's normally acceptable range for rural residential land uses at the property line Consequently construction, operation, and decommissioning of Solar Farm C would not create noise-related land use compatibility problems at on-site locations, and would have a less than significant impact under criterion NZ-2.

Criterion NZ-3. For the residence closest to the solar farm site, maximum CNEL increments from construction activity would be less than 57 dBA, which is within Riverside County's normally acceptable range for rural residential land uses. Construction-related traffic would increase noise levels along Kaiser Road, but resulting CNEL levels would remain within Riverside County's normally acceptable range for rural residential land uses. Solar Farm operational noise levels would be within Riverside County' 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 Solar Farm C would not create noise-related land use compatibility problems at off-site locations, and would have a less than significant impact under criterion NZ-3.

Criterion NZ 4. While overall construction activities would last for about two years, on-site construction activities at the solar farm site would be within ¼-mile of the closest residence for only a small portion of that time. Consequently, on-site construction activities for the solar farm would not constitute long-term sources of noise level increases at noise-sensitive land uses under criterion NZ-4. 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 8.1 dBA at a distance of 50 feet from the roadway centerline, with the CNEL increase dropping to no more than 4 dBA at a distance of 500 feet from the roadway centerline. Because CNEL increases would not exceed 10 dBA, construction-related traffic would have a less than significant noise impact under criterion NZ-4. Operational noise levels from the solar farm would not increase existing CNEL levels at any noise-sensitive land uses. Consequently, operational noise levels from the solar farm would be a less than significant impact under criterion NZ-4. Decommissioning noise levels would be similar to but somewhat less than noise levels associated with construction activities. Consequently, noise from solar farm decommissioning would be a less than significant impact under criterion NZ-4.

Criterion NZ 5. Construction and decommissioning activity for the solar farm site would be limited to daytime hours consistent with the Riverside County noise ordinance (beginning about 7 am during most of the year, and perhaps starting as early as 6 am during the summer months). Consequently, construction and decommissioning activity would be exempt from the Riverside County noise ordinance and noise from construction activity at the solar farm site would be a less than significant impact under criterion NZ-5. Operational noise levels at the solar farm site would be less than 45 dBA at the property line during daytime hours, and less than 35 dBA at the property line during nighttime hours. Consequently, operational noise from the solar farm would comply with the noise limits set by the Riverside County noise ordinance for facilities adjacent to rural residential land uses, and would be a less than significant impact under criterion NZ-5.

Criterion NZ-6. Ground vibrations from construction or decommissioning activity would not be perceptible at off-site locations. Operational activities at the solar farm would not generate meaningful ground vibrations. Consequently, ground vibration impacts from solar farm construction, operation, and decommissioning would be less than significant under criterion NZ-6.

Criterion NZ-7. Ground vibrations from construction or decommissioning activity would pose no risk of cosmetic damage to any existing buildings. Operational activities at the solar farm would not generate meaningful ground vibrations. Consequently, ground vibration impacts from solar farm construction, operation, and decommissioning would be less than significant under criterion NZ-7.

Gen-Tie Line A-2

Criterion NZ-1. Construction activities would generate higher noise levels than construction-related traffic, operational activities, or decommissioning activities for Gen Tie Line A-2. 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. 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. 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 Gen Tie Line A-2 would not pose a risk of hearing damage at off-site locations, and thus would be a less than significant impact under criterion NZ-1.

Criterion NZ-2. The Gen Tie Line corridor would not contain any noise sensitive land uses. Maximum CNEL increments from construction activity would be about 77 dBA at the edge of the Gen-Tie Line corridor, which is within Riverside County's conditionally acceptable range for industrial and utility land uses. There would be no persistent operational noise from Gen Tie Line A-2. Noise from decommissioning activities would be similar to but somewhat less than noise from construction activities. Consequently construction, operation, and decommissioning of Gen Tie Line A-2 would not create noise-related land use compatibility problems at on-site locations, and would have a less than significant impact under criterion NZ-2.

Criterion NZ-3. For the residences closest to the Gen Tie Line corridor, maximum CNEL increments from construction activity would be about 62 dBA, which is within Riverside County's conditionally acceptable range for rural residential land uses. While overall construction activity along Gen Tie Line A-2 would last about eight months, construction activity at any one location would only last a few weeks. Construction-related traffic would increase noise levels along Kaiser Road, but resulting CNEL levels would remain within Riverside County's normally acceptable range for rural residential land uses. There would be no persistent operational noise from Gen Tie Line A-2. Noise from decommissioning activities would be similar to but somewhat less than noise from construction activities. Consequently construction, operation, and decommissioning of Gen Tie Line A-2 would not create noise-related land use compatibility problems at off-site locations, and would have a less than significant impact under criterion NZ-3.

Criterion NZ 4. While overall construction activities would last for about eight months, construction activities along the Gen Tie corridor would be within ¼-mile of any existing residence for only a small portion of that time. Consequently, on-site construction activities for the Gen Tie Line A-2 would not constitute long-term sources of noise level increases at noise-sensitive land uses under criterion NZ-4. 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 8.1 dBA at a distance of 50 feet from the roadway centerline, with the CNEL increase dropping to no more than 4 dBA at a distance of 500 feet from the roadway centerline. Because CNEL increases would not exceed 10 dBA, construction-related traffic would have a less than significant noise impact under criterion NZ-4. Gen Tie Line A-2 would not generate any persistent operational noise levels. Consequently, operational noise levels from Gen Tie Line A-2 would be a less than significant impact under criterion NZ-4. Decommissioning noise levels would be similar to but somewhat less than noise levels associated with construction activities. Consequently, noise from Gen Tie Line decommissioning would be a less than significant impact under criterion NZ-4.

Criterion NZ 5. Construction activity for Gen Tie Line A-2 would be limited to daytime hours consistent with the Riverside County noise ordinance (beginning about 7 am during most of the year, and perhaps starting as early as 6 am during the summer months). Consequently, construction activity would be exempt from the Riverside County noise ordinance and noise from construction activity along Gen Tie Line A-2 would be a less than significant impact under criterion NZ-5.

Criterion NZ-6. Ground vibrations from construction or decommissioning activity 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, operation, and decommissioning would be less than significant under criterion NZ-6 and NZ-7.

Criterion NZ-7. Ground vibrations from construction or decommissioning activity 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 under criterion NZ-7.

Red Bluff Substation A

Criterion NZ-1. Construction activities would generate higher noise levels than construction-related traffic, operational activities, or decommissioning activities at Red Bluff Substation A. There are no noise-sensitive land uses near Red Bluff Substation A. Maximum 1-hour Leq noise levels associated with construction activities would be about 68 dBA at a distance of 500 feet from active construction activity. Maximum average noise levels over a construction day would be about 66 dBA at a distance of 500 feet from active construction activity. 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 Red Bluff Substation A would not pose a risk of hearing damage at off-site locations, and thus would be a less than significant impact under criterion NZ-1.

Criterion NZ-2. Maximum CNEL increments from construction activity would be about 78 dBA at a distance of 100 feet from active construction activity. This is within Riverside County's conditionally acceptable range for industrial and utility land uses. Construction-related traffic would have little effect on noise levels along I-10, and there are no noise-sensitive land uses along either of the alternative construction access road corridors. On-site operational noise levels at Red Bluff Substation A would result in an on-site CNEL level of about 67 dBA. This is 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 Red Bluff Substation A would not create noise-related land use compatibility problems at on-site locations, and would have a less than significant impact under criterion NZ-2.

Criterion NZ-3. Red Bluff Substation A is located on and surrounded by BLM land. The Riverside County General plan designation for the substation area is open space – rural. The table of land use compatibility standards in the noise element of the Riverside County General Plan does not include an open space land use designation, but sets a normally acceptable CNEL limit of 75 dBA for agricultural land uses, golf courses, riding stables, and cemeteries. There are no noise-sensitive land uses close to Red Bluff Substation site. Maximum CNEL increments from construction activity would be less than 63 dBA at a distance of 500 feet from active construction activity. Construction-related traffic would have little effect on noise levels along I-10, and there are no noise-sensitive land uses along either of the alternative construction access road corridors. On-site operational noise levels at Red Bluff Substation A would result in an on-site CNEL level of about 67 dBA. The masonry security wall around the substation site would reduce off-site operational noise CNEL levels to about 60 dBA at locations adjacent to the substation site. Noise from decommissioning activities would be similar to but somewhat less than noise from construction activities. Consequently construction, operation, and decommissioning of Red Bluff Substation A would not create noise-related land use compatibility problems at off-site locations, and would have a less than significant impact under criterion NZ-3.

Criterion NZ 4. There are no noise-sensitive land uses close enough to Red Bluff Substation A to be affected by construction, operation, or decommissioning noise. Consequently, Red Bluff Substation A would have a less than significant noise impact under criterion NZ-4.

Criterion NZ 5. Construction activity for the Red Bluff Substation A site would be limited to daytime hours consistent with the Riverside County noise ordinance (beginning about 7 am during most of the year, and perhaps starting as early as 6 am during the summer months). Consequently, construction activity would be exempt from the Riverside County noise ordinance and noise from construction activity at the Red Bluff Substation site would be a less than significant impact under criterion NZ-5.

Criterion NZ-6. Ground vibrations from construction or decommissioning activity would not be perceptible at off-site locations. Operational activities at the substation site would not generate meaningful ground vibrations. Consequently, ground vibration impacts from construction, operation, and decommissioning of Red Bluff Substation A would be less than significant under criterion NZ-6.

Criterion NZ-7. Ground vibrations from construction or decommissioning activity would pose no risk of cosmetic damage to any existing buildings. Operational activities at the substation site would not generate meaningful ground vibrations. Consequently, ground vibration impacts from construction, operation, and decommissioning of Red Bluff Substation A would be less than significant under criterion NZ-7.

Unavoidable Adverse Effects

No unavoidable adverse noise or vibration impacts would result from the implementation of Alternative 3.

4.10.6 Alternative 4 – No Issuance of a Right-of-Way Grant (No Action)

Under Alternative 4, the proposed Desert Sunlight Solar Farm Project 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. As a result, the construction and operation noise-related impacts of the Proposed Project would not occur at the proposed site. However, the land on which the project is proposed would become available to other uses that are consistent with BLM's land use plan, including another solar project requiring a land use plan amendment. In addition, in the absence of this project, other renewable energy projects may be constructed to meet State and Federal mandates, and those projects would have similar impacts in other locations.

4.10.7 Alternative 5 – No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Exclude Solar Energy Development on the Site (No Action with Plan Amendment)

Under Alternative 5, the proposed Desert Sunlight Solar Farm Project would not be approved by the BLM and the BLM would amend the CDCA Plan to make the proposed site unavailable for future renewable energy development. As a result, no renewable 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 the CDCA Plan would be amended to make the area unavailable for future renewable energy development, it is expected that the site would continue to remain with the existing ambient noise from its existing condition. Ambient noise of the site would not be expected to change noticeably from existing conditions and, as such, this No Action Alternative would not result in impacts from any increase in noise at the project site. However, in the absence of this project, other renewable energy projects may be constructed to meet State and Federal mandates, and those projects would have similar impacts in other locations.

4.10.8 Alternative 6 – No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Allow Solar Development on the Site (No Action with Plan Amendment)

Under Alternative 6, the proposed Desert Sunlight Solar Farm Project would not be approved by the BLM and the BLM would amend the CDCA Plan to allow for other solar projects on the site. As a result, it is possible that another solar energy project could be constructed on the project site.

Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. Different solar technologies use different machinery during construction and would create different ambient noise levels during operation. However, it is expected that all solar power technologies would require the use of large construction vehicles that would create unwanted noise close to the construction activity and some intermittent noise during operations. However, as with the Proposed Project, it is expected that other solar technologies would create only small increases in ambient noise during operation. As such, this No Action Alternative could result in an impact from increased ambient noise during construction and operation similar to those under the Proposed Project.

4.10.9 Cumulative Impacts

Cumulative noise or vibration impacts 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 impacts on a given area over a longer period of time. The factors of geographic extent and time frame for noise and vibration impacts are discussed below.

Geographic Extent

Noise

The noise impacts of the project alternatives stem primarily from temporary construction activities. Because noise levels decline rapidly with distance from the noise source, the geographic extent of noise impacts is limited to local areas. As demonstrated by the construction noise and traffic noise analyses presented previously, the geographic extent of potentially significant noise impacts seldom extends more than 1,000 feet from the area of noise generation.

Vibration

The ground vibration impacts of the project alternatives stem primarily from temporary construction activities. Ground vibrations dissipate more rapidly than airborne noise levels, limiting the geographic extent of ground vibration impacts to the immediate vicinity of the vibration source. As demonstrated by the ground vibration analyses presented previously, the geographic extent of potentially significant ground vibrations seldom extends more than a few hundred feet from the source of the vibrations.

Time Frame

Noise

Noise does not persist in the environment beyond the period during which it is being generated. Federal, state, and local noise criteria and standards are based primarily on daily or hourly noise level conditions. Daily noise levels are seldom aggregated or averaged over time periods longer than one year. Consequently, the time frame for cumulative noise issues requires at least partial overlap in the periods when noise is being generated from more than one project. Construction activities for the Desert Sunlight project alternatives would be limited to 2011, 2012, and the first half of 2013. Because the Desert Sunlight project alternatives would generate very little operational noise, cumulative noise issues are limited to the construction activity years.

Vibration

Vibrations do not persist in the environment beyond the period during which they are being generated. Ground vibration criteria and standards are all based on short-term conditions. Consequently, the time frame for cumulative vibration issues requires at least partial overlap in the periods when ground vibrations are being generated from more than one project. Construction activities for the Desert Sunlight project alternatives would be limited to 2011, 2012, and the first half of 2013. Because the Desert Sunlight project alternatives would generate no meaningful operational vibrations, cumulative vibration issues are limited to the construction activity years.

Existing Cumulative Conditions: Noise

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 project vicinity are generally low. Additional considerations regarding cumulative noise impacts for the various project alternatives in combination with existing conditions are presented below.

Action Alternatives (Alternatives 1, 2, and 3)

Existing projects and facilities listed in Table 3.18-2 are too far from the proposed solar farm area to create cumulative noise impacts in combination with any of the solar farm alternatives. The alternative transmission line corridors all cross I-10, and the Red Bluff Substation alternatives are near I-10. Consequently, cumulative noise issues for the propose project in combination with existing conditions are limited to transmission line and Red Bluff Substation alternatives in combination with existing noise levels along I-10. The transmission line alternatives would cross I-10 near the Red Bluff Substation alternative locations. Because there are no noise-sensitive receptors located close to the Red Bluff substation alternatives, cumulative noise conditions from project construction activities in these areas in combination with existing I-10 traffic noise conditions would be a less than significant impact. There are no noise-sensitive land uses along any access road options for either of the Red Bluff Substation alternatives. In addition, combined construction-related traffic for the solar farm, 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. Thus, there would be no significant cumulative noise impacts from Alternatives 1, 2, or 3 in combination with existing cumulative noise conditions.

No Action Alternatives (Alternatives 4, 5, and 6)

There would be no cumulative noise impacts under Alternatives 4, 5 or 6 because there would be no right-of-way grant for development of the solar farm area and associated facilities. Any future proposals for use of the site would be subject to separate environmental analysis.

Existing Cumulative Conditions: Vibration

There are no known existing ground vibration issues in the project study area. Because the project alternatives would not create any incrementally significant ground vibration issues, there would be no cumulative ground vibration impacts under any of the alternatives in combination with existing cumulative ground vibration conditions.

Future Foreseeable Projects: Noise

Foreseeable Projects in the Project Area

Most of the projects listed in Table 3.18-3 are too far from the proposed solar farm site to generate site-related cumulative noise issues in combination with the solar farm alternatives, transmission line alternatives, or Red Bluff substation alternatives. Only two projects listed in Table 3.18-3 have the potential for cumulative site-related noise effects in combination with the Desert Sunlight project. Transmission Line Alternatives A-1 and A-2 would pass through or near the Chuckwalla Solar I project site. In addition, the Eagle Mountain Soleil Project is adjacent to the south side of the Desert Sunlight solar farm site. Thus, only the Chuckwalla Solar I and Eagle Mountain Soleil projects have the potential for cumulative site-related noise impacts in combination with the proposed Desert Sunlight project.

Most of the projects listed in Table 3.18-3 would contribute construction traffic to portions of I-10. Because the time frames for construction of the different projects in Table 3.18-3 generally are not known, it is unclear which of the projects might have construction periods that overlap with the construction time frame for the Desert Sunlight project. In addition, no estimates of construction-related traffic are available for most of the projects listed in Table 3.18-3. Notwithstanding such uncertainties, it is not plausible to assume that the cumulative construction traffic generated by concurrent projects would more than double the existing traffic volumes on I-10 (currently 21,000 to 23,000 vehicles per day with 40 percent truck traffic). Since traffic volumes on I-10 would need to be doubled to cause even a 3 dBA increase in noise levels along I-10, no significant noise impact is plausible for the cumulative effects of construction-relate traffic from projects listed in Table 3.18-3.

Action Alternatives (Alternatives 1, 2, and 3).

The timing for approval and construction of the Chuckwalla Solar I and Eagle Mountain Soleil projects is not known, but could potentially overlap with part of the construction period for the Desert Sunlight project. Consequently, there is the potential for temporary cumulative noise impacts from the Desert Sunlight project in combination with either or both of these other solar energy projects. But because the geographic extent of construction-related noise issues is limited to distances of 1,000 feet or less and no noise-sensitive land uses are within that distance from both the Desert Sunlight project and one or more of the other solar energy projects, no significant cumulative noise impacts from on-site construction activities would be expected from the Chuckwalla Solar I project or the Eagle Mountain Soleil project in combination with the Desert Sunlight project.

While construction-related traffic for the Chuckwalla Solar I project would share I-10 with construction-related traffic for the Desert Sunlight project, construction traffic for the Chuckwalla Solar I site would not use Kaiser Road. Construction traffic for the Eagle Mountain Sloleil project, however, would be expected to use Kaiser Road. The Eagle Mountain Soleil project is much smaller than the Desert Sunlight project (100 MW capacity for Eagle Mountain Soleil versus 550 MW for Desert Sunlight), but may not have a construction worker shuttle bus system such as that proposed for the Desert Sunlight project. Assuming that cumulative construction-related traffic for Desert Sunlight plus Eagle Mountain Soleil would be 50 percent higher than the volume projected for Desert Sunlight alone, cumulative noise levels along Kaiser Road would increase by about 1.8 dBA above those projected for the Desert Sunlight project. Under those conditions, CNEL levels along Kaiser Road would remain within Riverside County's normally acceptable range for rural residential land uses at distances of more than 50 feet from the Kaiser Road centerline, and would be within Riverside County's conditionally acceptable range for rural residential land uses for locations within 50 feet of the Kaiser Road centerline. Consequently, cumulative construction-related traffic noise along Kaiser Road would be a less than significant impact.

No Action Alternatives (Alternatives 4, 5, and 6).

There would be no cumulative air quality impacts under Alternatives 4, 5 or 6 because there would be no right-of-way grant for development of the solar farm area and associated facilities. Any future proposals for use of the site would be subject to separate environmental analysis.

Foreseeable Renewable Projects in the California Desert

The foreseeable renewable projects in the California desert as listed in Table 3.18-1 would generally be too far from the Desert Sunlight project to have any cumulative noise impacts in combination with the Desert Sunlight project.

Future Foreseeable Projects: Vibration

Foreseeable Projects in the Project Area

Most of the projects listed in Table 3.18-3 are too far from the proposed solar farm site to generate cumulative ground vibration issues in combination with the solar farm alternatives, transmission line alternatives, or Red Bluff substation alternatives. Only two projects listed in Table 3.18-3 have the potential for cumulative vibration effects in combination with the Desert Sunlight project. Transmission Line Alternatives A-1 and A-2 would pass through or near the Chuckwalla Solar I project site. In addition, the Eagle Mountain Soleil Project is adjacent to the south side of the Desert Sunlight solar farm site. Thus, only the Chuckwalla Solar I and Eagle Mountain Soleil projects have the potential for cumulative noise impacts in combination with the proposed Desert Sunlight project. The geographic extent of potential ground vibration impacts is limited to a distance of a few hundred feet from the source of the vibrations. There are no vibration-sensitive land uses within this distance range for the combination of Desert Sunlight project components and the Chuckwalla Solar I or Desert Soleil projects. Consequently, there would be no cumulative ground vibration impacts from the combination of the Desert Sunlight project and other foreseeable projects listed in Table 3.18-3.

Foreseeable Renewable Projects in the California Desert

The foreseeable renewable projects in the California desert as listed in Table 3.18-1 would generally be too far from the Desert Sunlight project to have any cumulative ground vibration impacts in combination with the Desert Sunlight project.

Overall Conclusions

Due to the limited geographic extent of potential noise and ground vibration impacts (as discussed above), the Desert Sunlight project would have no significant cumulative noise or ground vibration impacts in combination with any past, present, or foreseeable future projects.

4.11 PUBLIC HEALTH AND SAFETY/HAZARDOUS MATERIALS

4.11.1 Methodology for Analysis

Baseline conditions for the impact analysis presented in this section were established in Section 3.11. The thresholds applicable to the analysis of potential impacts on public health and safety from a proposed project under NEPA or CEQA include reportable quantities of hazardous materials under CERCLA and quantitative exposure thresholds under OSHA and /or CalOSHA. The criteria were defined based on review relevant data associated with the Project Area and Appendix G of the CEQA Guidelines.

To evaluate impacts from existing hazardous waste within the Project Study Area, a review was conducted of the Phase I Environmental Site Assessment completed for the Project. The Applicant's Plan of Development (POD) was reviewed to evaluate impacts from hazardous materials that would be used during construction and operations and maintenance.

County maps were reviewed to determine the Project's proximity to schools and airports. In addition, the risk of fire based on hazard maps and assessments provided in the County of Riverside General Plan (2003) were considered. The County of Riverside General Plan was also reviewed for requirements for Emergency Response Plans, hazard management plans, and wildfire potential. The Applicant's Plan of Development was reviewed for their proposed actions related to worker health and safety, hazardous materials management, spill prevention and Intentionally Destructive Acts.

Based on the affected environment detailed in Section 3.11, Table 4.11-1 presents the potential for alternative Project components to have impacts to public health and safety.

Table 4.11-1
Comparison of Action Alternative Features Relevant to Public Health and Safety/Hazardous Materials

Public Health and Safety/Hazardous Materials Element	Alt. 1: SF_B	Alt. 1: GT-A-1	Alt. 1: Red Bluff Substation A	Alt. 2: SF-B	Alt. 2: GT-B-2	Alt. 2: Red Bluff Substation B	Alt. 3: SF-C	Alt. 3: GT-A-2	Alt. 3: Red Bluff Substation A
Hazardous Materials/Hazardous Waste	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Airports*	No	No	Yes	No	No	Yes	No	No	Yes
Schools	No	No	No	No	No	No	No	No	No
Emergency Evacuation and Emergency Response Plan	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wildfire	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Intentionally Destructive Acts	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* The Desert Center Communications Site (Telecom Site) element of the Red Bluff Substation could pose a safety hazard to a local air strip.

4.11.2 CEQA Significance Criteria

Public health and safety and exposure of the environment and/or the public to hazardous materials and waste would be significantly affected by the Proposed Project if one or more of the following criteria are met:

H-1 Increase 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 Increase significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

H-3 Create 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 Be 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 Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;

H-6 Mobilize 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 Expose 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 Expose 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 Result in safety hazards to people that may be located in the vicinity of private air strips or airports located within two miles of the project; or

H-10 Expose 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.

This criterion was determined to be inapplicable or to result in no impact: 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.

The following EMF information is provided to allow an understanding of the issue by the public and decision makers. Generation of EMF is not considered a NEPA or CEQA issue and no impact significance is presented as: 1) there is no agreement among scientists that EMF does create a potential health risk; and 2) there are no adopted NEPA or CEQA standards for defining health risks from EMF. As the Solar Farm is brought on-line and starts to produce electricity, and electricity is transmitted through the Gen-Tie line, EMF fields would be generated. In response to a situation of scientific uncertainty and public concerns regarding EMF, the following mitigation would be implemented by the Applicant for the Solar Farm and Gen-Tie Line, SCE for the Red Bluff Substation.

The Applicant will prepare a Field Management Plan that specifies, where feasible, "no-cost" and "low-cost" measures, to reduce exposure from the Solar Farm and Gen-Tie facilities (or Red Bluff Substation). No-cost mitigation measures would be undertaken, and low-cost options, when they meet certain guidelines for field reduction and cost, would be adopted through the project certification process and specified in a Field Management Plan. This issue is not addressed further.

4.11.3 Alternative 1 – Proposed Action

Construction

Solar Farm Layout B

Construction of SF-B would require clearance of approximately 4,245 acres. Development of the solar farm site is described in Section 2.2.4 (Alternative 1). In addition to the solar array, other permanent land uses include the Operation & Maintenance (O&M) Facilities, On-Site Substation, and Visitor's Center. Internal roads would be constructed as part of this alterative.

Hazardous Materials/Hazardous Waste

Hazardous Materials. Construction of SF-B would require the use of hazardous materials plus the temporary storage of hazardous wastes. The Project would generate minimal wastes during construction and there would be a limited amount of hazardous materials stored or used on site during construction, as shown in Tables 4.11-2 and 4.11-3. As explained below, the risk of exposure to the cadmium telluride (CdTe) semiconductor material within the PV modules range from non-existent under normal conditions to negligible under foreseeable "worst case" scenarios (wildfire and seismic events).

Table 4.11-2
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

Table 4.11-3
Hazardous Materials/Petroleum Products Stored on Site during Operations

Hazardous Material	Use
Diesel Fuel	Vehicles
Gasoline	Maintenance of Equipment and Vehicles
Motor Oil	Maintenance of Equipment and Vehicles
Soil Stabilizers	Maintenance Roads
Mineral Oil	Transformers
Lubricants	Maintenance of Vehicles
Cleaning Solvents	PV Module Assembly
BLM-Approved Herbicide	On an As-Needed Basis for Invasive Weeds

The Project would require the use hazardous materials during construction of the Project. Hazards to the public or environment may be caused by the transport, use or disposal of hazardous materials as identified in Tables 4.11-2 and 4.11-3. Implementing Mitigation Applicant Measure (AM)-HAZ-1 would reduce these impacts.

The use of First Solar PV modules for the Solar Farm would not result in a significant risk of a release of hazardous materials that would be harmful to human health or the environment. Sources of information used to conclude that the proposed PV modules would not result in a significant risk of hazardous materials may be found as part of the Applicant's Supplement to the Plan of Development (16 June 2010) for the proposed Project (First Solar, Inc. 2010a). Hazardous materials are used in the manufacture of the PV modules, including CdTe. During the manufacturing process, the CdTe is bound to a glass sheet by vapor transport deposition, followed by sealing the CdTe layer with a laminate material and a second glass sheet (Fthenakis 2008). While CdTe itself is a hazardous substance in an isolated form (i.e., not embedded within a PV module), any risk to human health or the environment through the proposed Project is minimized by a combination of product design and testing, Project design, monitoring and replacement, and ultimately by the collection and recycling of PV modules in the event they become damaged or defective or upon Project decommissioning.

CdTe contained within PV modules is highly stable and, even if the modules become broken or damaged, would not mobilize from the glass and into the environment except under very specific conditions, none of which constitute plausible exposure scenarios under actual or projected "worst case" Project conditions. One condition would be if glass modules are ground into an extremely fine powder and then subjected to agitation in an acidic environment (Golder Associates 2010). However, these conditions would not occur in the field during any Project operations or in a landfill. Even assuming an extreme seismic event that resulted in substantial damage to PV modules, the modules would not be destroyed to a fine powder and, even if this could happen, there still would not be a subsequent exposure to the acidic conditions necessary to mobilize CdTe, which is bound to the glass, into the environment. In addition, once in the environment, CdTe would not migrate because it is insoluble in water and sorbs to soil particles (Golder Associates 2010, Lange 1973).

Another condition under which minor amounts of CdTe could be released from a PV module is if the module is subjected to a fire (Fthenakis 2005). Such conditions are unlikely to occur at the Project site because of the lack of fuel to support a sustained wildfire and the wildfire mitigation measures for the Project (Mitigation AM-HAZ-4). Grass fires are the most likely fire exposure for ground-mounted PV systems, and these fires tend to be short-lived due to the thinness of fuels. As a result, these fires are unlikely to expose PV modules to prolonged fire conditions or to temperatures high enough to volatilize CdTe, which has a melting point of 1,041 degrees Celsius. Moreover, even if a desert wildfire could reach that temperature, the actual loss of CdTe from a module would be insignificant (approximately 0.04 percent). For these reasons, the probability of sustained fires and subsequent emissions in adequately designed and maintained utility systems appears to be zero (Fthenakis 2005).

These insignificant impacts are further minimized by First Solar's operational and maintenance protocols used to identify and remove damaged or defective PV modules during annual inspections, routine power output performance checks and resultant array and panel inspections. In addition, the potential for exposures to CdTe at levels of concern is further minimized as First Solar would remove identified damaged or defective PV modules from the Solar Farm site, as well as PV modules at the time of decommissioning, and then collect and recycle them in accordance with First Solar's pre-funded PV module collection and recycling program. In 2005, the Applicant established a pre-funded PV module collection and recycling program so that the Applicant's modules may be returned to the company for recycling at no cost to the end user (First Solar 2010b). The program funds are independently managed as a trust to ensure that they will be available when they are needed in the future, regardless of the future financial status of the Applicant. Approximately 90 percent of all modules collected are recycled into new products, including new Applicant-produced modules (First Solar 2009). Finally, even if some modules were sent to landfills instead of being recycled, CdTe would not leach out even under landfill conditions (Golder Associates 2010).

During standard operation of CdTe PV systems, there are no cadmium emissions to the environment. In the exceptional case of accidental fires or broken panels, scientific studies show that cadmium emissions remain negligible. Exposure to hazardous materials may also be caused by discharge of disposal onto soils; or through upset or accidental release. Proposed development of the Solar Farm would include the following mitigations to reduce the impacts from hazardous materials used during construction and operation of the Project and hazardous waste temporarily stored on site prior to appropriate disposal. The Applicant would be responsible for the mitigations.

Hazardous Waste. The Project 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. Based on the Phase I Environmental Site Assessment (Phase I) prepared for the proposed Project, there are no Recognizable Environmental Concerns (RECs) (Appendix J). There would not be an increase in exposure of construction or permanent workers or the environment to potentially hazardous levels of chemicals due to the disturbance of previously contaminated soils. No impacts would occur and, therefore, no mitigation is required.

Both the Phase I study and the Class I cultural inventory of the Project site indicated that the site 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. During the Class III cultural resources survey, evidence of possible MEC has been identified along two of the Gen-Tie Line alternatives. Implementing Mitigation AM-HAZ-2 would reduce these impacts.

Airports

The construction of SF-B would not create safety hazards for the one small private air strip or the special use airport in the vicinity. SF-B would be constructed more than 1 mile from either airstrip. The approximate distance from SF-B to the private air strip adjacent to the former Eagle Mountain mine is 6,500 feet. The approximate distance from the proposed Desert Center Communication Center associated with the Substation alternatives to the Special Use Airport is 6,000 feet. SF-B would have no aboveground structures that would increase safety hazards to the two private air strips. No impacts would occur.

Emergency Evacuation and Emergency Response Plan

The construction of SF-B has the potential for impairing implementation of County of Riverside adopted emergency evacuation and emergency response plans. During construction, activities could affect traffic and emergency routes, including equipment and material delivery. Impacts to existing emergency evacuation and emergency response plans would be significant without implementation of Mitigation AM-HAZ-3. The Applicant would be responsible for implementing Mitigation AM-HAZ-3 to reduce these impacts.

Wildfire

SF-B would be located in an area of Riverside County that has been determined to have a low to moderate susceptibility to wildfire. However, construction of SF-B 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 off road. The Applicant would be responsible for implementing Mitigation AM-HAZ-4, which would reduce these impacts.

Intentionally Destructive Acts

The risk to workers or the public from damage to the Solar Farm as a result of accidental or intentional actions by outside parties during construction is low because public access would be controlled by security and fencing. Once constructed, the Solar Farm would be monitored by permanent staff. The construction of the Solar Farm would not increase the risk for environmental impacts from intentionally destructive acts. Implementing Mitigation AM-HAZ-5 would further reduce these impacts.

Gen-Tie Line A-1

Construction of GT-A-1 within the 12.1-mile by 160-foot-wide transmission corridor plus additional fan-shaped areas at corners would result permanent disturbance of 18 acres along the route, as described in Section 2.2.4 (Alternative 1).

Hazardous Materials/Hazardous Waste

During the construction phase of GT-A-1, hazardous materials as identified in Table 4.11-1 would be in use. To ensure worker health and safety and no impacts to the environment, Mitigation AM-HAZ-1 would be implemented to reduce impacts. A less than significant impact would occur. Based on the evidence of possible MEC, prior to construction of GT-A-1, implementation of Mitigation AM-HAZ-2 would reduce these impacts.

Airports

Construction of GT-A-1 would not create safety hazards for the one small private air strip or the special use airport in the vicinity. Although GT-A-1 would result in construction of 135–foot-tall towers, the location of GT-A-1 is more than 1 mile from either the air strip or the special use airport. The closest portion of GT-A-1 to either the private air strip or the special use airport is approximately 4 miles. No impact would occur.

Emergency Evacuation and Emergency Response Plan

During construction of GT-A-1, there would be workers at the site and an Emergency Evacuation and Response Plan would be needed to provide directions for responding during an emergency. During construction, activities could affect traffic and emergency routes, including equipment and material delivery. Impacts to existing emergency evacuation and emergency response plans would be significant without implementation of Mitigation AM-HAZ-3. To ensure adequate responses during an emergency, Mitigation AM-HAZ-3 would be implemented to reduce impacts.

Wildfire

GT-A-1 would be located in an area of Riverside County that has been determined to have a low to moderate susceptibility to wildfire. During construction of GT-A-1, there would be an increased potential for a wildfire that could affect the public and environment by exposure to wildfire due to construction activities. 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 ensure adequate response to the threat of wildfire during operation of GT-A-1, Mitigation AM-HAZ-4 would be implemented to reduce impacts. A less than significant impact would occur.

Intentionally Destructive Acts

The risk to workers or the public from damage to GT-A-1 as a result of accidental or intentional actions by outside parties during construction is low because public access would be controlled by fencing or walls. Once constructed, GT-A-1 would be monitored by permanent staff. The construction of GT-A-1 would not increase the risk for environmental impacts from intentionally destructive acts. The Applicant would be responsible for implementing Mitigation AM-HAZ-5 to reduce impacts from intentionally destructive acts.

Red Bluff Substation A

Construction of Red Bluff Substation A includes the Substation itself and related elements. It would result in approximately 128 acres of permanent disturbance, including 75 acres for the Substation itself, as described in Section 2.2.4 (Alternative 1). The Project also includes construction of the Desert Center Communication Center (not collocated with the Substation and requiring less than 1 acre of disturbance); an access road east of the substation from Chuckwalla Valley Road/Corn Springs Road (Access Road 2, requiring 19 acres of disturbance); an electrical distribution line (8 acres of disturbance); various tie-ins from the Substation to the Gen-Tie Line and to the regional transmission line (DPV1) adjacent to the Substation site (5 acres of disturbance); and 20 acres of associated drainage features.

Hazardous Materials/Hazardous Waste

Hazardous Materials. Construction of Red Bluff Substation A, the Desert Center Communications Site, and related facilities by SCE would require the use of hazardous materials plus the temporary storage of hazardous wastes. Construction would also result in the generation of various waste materials that can be recycled and salvaged. Waste items and materials would be collected by construction crews and separated into roll-off boxes at the materials staging area. All waste materials that are not recycled would be categorized in order to assure appropriate final disposal. Non-hazardous waste would be transported to local authorized waste management facilities.

The Project would use hazardous materials during construction of Red Bluff Substation A. Exposure to hazardous materials may also be caused by discharge of disposal onto soils, or through upset or accidental release. Significant impacts would occur from the hazardous wastes generated during construction. Operation of Red Bluff Substation A would require nominal Implementation of Mitigations AM-HAZ-6a through AM-HAZ-6f would reduce the impacts from hazardous materials used.

Hazardous Waste. Red Bluff Substation A 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. Based on the Phase I Environmental Site Assessment prepared for the proposed Project, there are no Recognizable Environmental Concerns (RECs) in the area (Appendix J). There would not be an increase in exposure of construction or permanent workers or the environment to potentially hazardous levels of chemicals due to the disturbance of previously contaminated soils. No impacts would occur and, therefore, no mitigation is required.

As discussed for SF-B, both the Phase I study and the Class I cultural inventory of the Project site indicated that the site was historically used as a military training facility, that there is potential for munitions and explosives of concern (MEC) to be present on portions of the site, and that during the Class III survey, evidence of possible MEC has been identified along two of the Gen-Tie route alternatives. Based on this is preliminary information, SCE shall incorporate mitigations identified in Mitigation AM-HAZ-2 as part of its planning for Red Bluff Substation A in coordination with the BLM.

Airports

Construction of the 185-foot microwave tower at Desert Center Communications Center associated with Red Bluff Substation A would create safety hazard for the special use airport in the vicinity. The tower would be just more than a mile (approximately 6,000 feet) from the special use airport runway. SCE has submitted an application to the Federal Aviation Administration (FAA) for the tower. Implementation of Mitigation AM-HAZ 7, which is to follow FAA permit requirements for the microwave tower, would reduce impacts.

Emergency Evacuation and Emergency Response Plan

The construction of Red Bluff Substation A has the potential for impairing implementation of County of Riverside adopted emergency evacuation and emergency response plans. During construction, activities could affect traffic and emergency routes, including equipment and material delivery. Impacts to existing emergency evacuation and emergency response plans would be significant without implementation of Mitigation AM-HAZ-8. Proposed construction of Red Bluff Substation A shall include the Mitigation AM-HAZ-8 to help ensure reduce impacts for emergency evacuation and emergency response plans during construction of Red Bluff Substation A..

Wildfire

Red Bluff Substation A would be constructed in an area of Riverside County that has been determined to have a low to moderate susceptibility to wildfire. However, construction of the Substation would increase the potential for a wildfire and could affect the public and environment by exposure to wildfire from 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 off-road. . Implementation of Mitigation AM-HAZ-9 by SCE would reduce these impacts.

Intentionally Destructive Acts

The risk to workers or the public from damage to the Red Bluff Substation A during construction as a result of accidental or intentional actions by outside parties is low because public access would be controlled, primarily by fencing. The construction of the Substation would not increase the risk for environmental impacts from intentionally destructive acts. SCE would be responsible for implementing Mitigation AM-HAZ-10 to reduce impacts.

Summary of Construction Impacts

The construction of Alternative 1 with SF-B, GT-A-1 and Substation A, would increase the exposure of people and the environment to hazards related to:

- Hazardous Materials/Hazardous Waste
- Emergency Evacuation and Emergency Response Plans
- Wildfire; and
- Intentionally Destructive Acts

In addition to these hazards, construction of the 185-foot microwave tower at the Desert Center Communications Center (associated with the Substation) may increase hazards for the special use airport. Completion of identified mitigation measures would reduce these impacts.

Operation and Maintenance

Solar Farm Layout B

Hazardous Materials/Hazardous Waste

During the operation and maintenance phase of SF-B, hazardous materials would still be in use but at a much lower level than during construction. To ensure worker health and safety and no impacts to the environment, Mitigation AM-HAZ-1 would be implemented to reduce impacts. A less than significant impact would occur.

Airports

The operation of SF-B would not impact either the private air strip or the special use airport. SF-B would not have aboveground structures that would increase the safety hazards to the private air strip or the special use airport. No impact would occur.

Emergency Evacuation and Emergency Response Plan

During operation of SF-B, while there would be fewer workers at the site, an Emergency Evacuation and Response Plan would still be needed to provide directions for responding during an emergency. Regularly scheduled or emergency maintenance would be infrequent. To ensure adequate responses during an emergency, Mitigation AM-HAZ-3 would be implemented to reduce impacts.

Wildfire

During operation of SF-B, there would be an increased potential for a wildfire that and could impact the public and environment by exposure to wildfire due to on-going 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 ensure adequate response to the threat of wildfire during operation of SF-B, Mitigation AM-HAZ-4 would be implemented to reduce impacts.

Intentionally Destructive Acts

The potential for Intentionally Destructive Acts would remain during operation of SF-B. Mitigation AM-HAZ-5 would be implemented to reduce impacts.

Gen-Tie Line A-1

Hazardous Materials/Hazardous Waste

During the operation phase of GT-A-1, hazardous materials would still be in use but at a much lower level than during construction. To ensure worker health and safety and no impacts to the environment, Mitigation AM-HAZ-1 would be implemented to reduce impacts.

Airports

As with construction, the operation of GT-A-1 would not impact either the private air strip or the special use airport. While GT-A-1 would include 135-foot-tall towers, the location of GT-A-1 would be more than 1 mile from the special use airport. The closest portion of GT-A-1 to either the private air strip or the special use airport is approximately 4 miles. No impact would occur.

Emergency Evacuation and Emergency Response Plan

During operation of GT-A-1, there would be fewer workers at the site, but an Emergency Evacuation and Response Plan would still be needed to provide directions for responding during an emergency. Regularly scheduled or emergency maintenance would be infrequent. To ensure adequate responses during an emergency, Mitigation AM-HAZ-3 would be implemented to ensure reduced impacts.

Wildfire

During operation of GT-A-1, there would be an increased potential for a wildfire that and could impact the public and environment by exposure to wildfire due to on-going 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. Mitigation AM-HAZ-4 would be implemented to reduce impacts.

Intentionally Destructive Acts

The potential for Intentionally Destructive Acts would remain during operation of GT-A-1. Mitigation AM-HAZ-5 would be implemented to reduce these impacts

Red Bluff Substation A

Hazardous Materials/Hazardous Waste

During operation, Red Bluff Substation A, the Desert Center Communications Site, and related facilities by SCE would be unmanned but regularly scheduled maintenance plus any emergency repairs would require workers and the potential use of hazardous materials. Hazardous materials would still be in use but at a much lower level than during construction. To ensure worker health and safety and no impacts to the environment, Mitigation AM-HAZ-6 would be implemented to reduce impacts. A less than significant impact would occur.

Airports

Operation of the 185-foot microwave tower at the Desert Center Communications Center associated with Red Bluff Substation A would create safety hazards for the Special Use Airport in the vicinity. The tower would be just more than a mile (6,000 feet) from this private special use airport's runway. SCE has submitted an application to the FAA for the tower. Implementation of Mitigation AM-HAZ 7, which is to follow FAA permit requirements for the microwave tower, would reduce impacts.

Emergency Evacuation and Emergency Response Plan

During operation of the Red Bluff Substation, primary maintenance would be conducted via remote monitoring of collected data. Occasional visits for routine maintenance would be completed and emergency maintenance may also be needed. As a result, an Emergency Evacuation and Response Plan would be needed to provide directions for responding during an emergency. Regularly scheduled or emergency maintenance would be infrequent. To ensure adequate responses during an emergency, Mitigation AM-HAZ-8 would be implemented to ensure reduced impacts.

Wildfire

During operation of Red Bluff Substation A, there would be an increased potential for a wildfire that and could impact the public and environment by exposure to wildfire due to on-going operation and maintenance activities. The risk of wildfire would be related to combustion of native plants caused by smoking and operating vehicles. To ensure adequate response to the threat of wildfire during operation of Red Bluff Substation B, Mitigation AM-HAZ-9 would be implemented to reduce impacts.

Intentionally Destructive Acts

The risk to workers or the public from damage to Red Bluff Substation A as a result of accidental or intentional actions by outside parties is low because the Substation would not be staffed and because public access would be controlled by fencing. This would not preclude Intentionally Destructive Acts specifically targeting the Substation. SCE would be responsible for implementing mitigation AM-HAZ-10 to reduce impacts from Intentionally Destructive Acts to Red Bluff Substation A to a less than significant level.

Summary of Operation and Maintenance Impacts

The operation and maintenance of Alternative 1 with SF-B, GT-A-1 and Substation B, would increase the exposure of people and the environment to hazards related to:

- Hazardous Materials/Hazardous Waste
- Emergency Evacuation and Emergency Response Plans
- Wildfire; and
- Intentionally Destructive Acts

In addition to these hazards, construction of the 185-foot microwave tower at the Desert Center Communications Center (associated with the Substation) may increase hazards for the local private airstrip. Completion of identified mitigation measures would reduce these impacts.

Decommissioning

Decommissioning would involve deconstructing Project components and recycling or disposing or all materials. The Project area would also need to be restored.

Solar Farm Layout B

Hazardous Materials/Hazardous Waste

During the decommissioning phase of SF-B, hazardous materials use would likely be comparable to the use during construction. Waste that would be recycled or disposed of would be generated as part of decommissioning. To ensure worker health and safety and no impacts to the environment, Mitigation HAZ-1 would be implemented to reduce impacts. A less than significant impact would occur.

Airports

As with construction, the decommissioning of SF-B would not impact either the private air strip or to the special use airport. All facilities associated with SF-B would be removed. No impact would occur.

Emergency Evacuation and Emergency Response Plan

During the decommissioning of SF-B, there would be more workers at the site. An Emergency Evacuation and Response Plan would be needed to provide directions for responding during an emergency. During decommissioning, activities could affect traffic and emergency routes during equipment and material delivery. Impacts to existing emergency evacuation and emergency response plants would be significant. To ensure adequate responses during an emergency, Mitigation AM-HAZ-3 would be implemented to ensure reduced impacts.

Wildfire

During the decommissioning activities of SF-B, there would be an increased potential for a wildfire that and could impact the public and environment by exposure to wildfire. 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 ensure adequate response to the threat of wildfire during operation of SF-B, Mitigation AM-HAZ-4 would be implemented to reduce impacts.

Intentionally Destructive Acts

The potential for Intentionally Destructive Acts would remain during decommissioning of SF-B. Mitigation AM-HAZ-4 would be implemented to reduce impacts. Once all Project equipment has been dismantled and removed, the potential for Intentionally Destructive Acts would be eliminated.

Gen-Tie Line A-1

Hazardous Materials/Hazardous Waste

During the decommissioning phase of GT-A-1, use of hazardous materials would be comparable to those levels used construction. To ensure worker health and safety and no impacts to the environment, Mitigation AM-HAZ-1 would be implemented to reduce impacts.

Airports

As with construction, the decommissioning of GT-A-1 would not impact either the private air strip or the special use airport. Although decommissioning of GT-A-1 would remove structures at least 135 feet tall, the location of GT-A-1 would be more than 1 mile from the special use airport. . The closest portion of GT-A-1 to either the private air strip or the special use airport is approximately 4 miles. No impact would occur.

Emergency Evacuation and Emergency Response Plan

During decommissioning of GT-A-1, the transmission lines and structures would be dismantled and removed. This would likely require an Emergency Evacuation and Response Plan to provide directions for responding during an emergency. During decommissioning, activities could affect traffic and emergency routes, including equipment and material delivery. Impacts to existing emergency evacuation and emergency response plans would be significant. To ensure adequate responses during an emergency, Mitigation AM-HAZ-3 would be implemented to ensure reduced impacts. The Applicant would be responsible for implementing Mitigation AM-HAZ-3 to reduce these impacts.

Wildfire

During decommissioning of GT-A-1, there could be an increased potential for a wildfire that could affect 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 ensure adequate response to the threat of wildfire during decommissioning of GT-A-1, Mitigation AM-HAZ-4 would be implemented to reduce impacts.

Intentionally Destructive Acts

The potential for Intentionally Destructive Acts would remain during decommissioning of GT-A-1. Mitigation HAZ-5 would be implemented to reduce impacts. Once all Project equipment has been dismantled and removed, the potential for Intentionally Destructive Acts would be eliminated.

Red Bluff Substation A

Hazardous Materials/Hazardous Waste

Decommissioning of Red Bluff Substation A, the Desert Center Communications Site, and related facilities by SCE would require the use of hazardous materials plus the temporary storage of hazardous wastes. Hazardous materials use likely at the same level as used during construction could be used. As much of the waste as possible would be recycled. Non-recycled waste would be disposed of in an appropriate landfill. Proposed decommissioning of Red Bluff Substation A shall include the Mitigations AM-HAZ-6a through AM-HAZ-6g implemented by SCE to reduce the impacts.

Airports

The decommissioning of the Desert Center Communication Center would include removing the 185-foot microwave tower, thereby removing a safety hazards for the special use airport in the vicinity. No air safety hazards would remain. No impact would occur. No mitigations are proposed.

Emergency Evacuation and Emergency Response Plan

The decommissioning of Red Bluff Substation A has the potential for impairing implementation of County of Riverside adopted emergency evacuation and emergency response plans. During decommissioning, activities could affect traffic and emergency routes, including equipment and material delivery. Impacts to existing emergency evacuation and emergency response plans would be significant without implementation of Mitigation AM-HAZ-7. Decommissioning of Red Bluff Substation A shall include the Mitigation AM-HAZ-7 to help ensure reduce impacts for emergency evacuation and emergency response plans.

Wildfire

During decommissioning of Red Bluff Substation B, there would be an increased potential for a wildfire that and could impact the public and environment by exposure to wildfire. The risk of wildfire would be related to combustion of native plants caused by smoking, refueling, and operating vehicles and other equipment off road. To ensure adequate response to the threat of wildfire during decommissioning of the Substation, Mitigation AM-HAZ-9 would be implemented to reduce impacts.

Intentionally Destructive Acts

The risk to workers or the public from damage to the Red Bluff Substation A as a result of accidental or intentional actions by outside parties is low because public access would be controlled by fencing. The decommissioning of Red Bluff Substation A would not increase the risk for environmental impacts from intentionally destructive acts. SCE would be responsible for implementing mitigation AM-HAZ-10 to reduce impacts. Once all substation equipment and structures have been dismantled and removed, the potential for Intentionally Destructive Acts would be eliminated.

Summary of Decommissioning Impacts

The decommissioning of Alternative 1 with SF-B, GT-A-1 and Substation B, would increase the exposure of people and the environment to hazards related to:

- Hazardous Materials/Hazardous Waste
- Emergency Evacuation and Emergency Response Plans
- Wildfire; and
- Intentionally Destructive Acts

The decommissioning of Red Bluff Substation B would decrease hazards associated with the 185-foot microwave tower at the adjacent Desert Center Communications Center for the local private air strip.

Summary of Combined Impacts for Alternative 1

The construction, operation and decommissioning of Alternative 1 with SF-B, GT-A-1 and Substation B, would increase the exposure of people and the environment to hazards related to

- Hazardous Materials/Hazardous Waste
- Emergency Evacuation and Emergency Response Plans
- Wildfire; and
- Intentionally Destructive Acts

In addition to these hazards, Red Bluff Substation B has the potential to increase hazards associated with the construction as well as operation and maintenance of a 185-foot microwave tower at the adjacent Desert Center Communications Center for the local private air strip located. Completion of identified mitigation measures would reduce these impacts. The decommissioning of Red Bluff Substation B, however, would decrease hazards associated with the 185-foot microwave tower.

Applicant Measures and Mitigation Measures

All measures identified to reduce impacts are proposed by the Applicant or SCE, as appropriate.

SF-B and GT-A-1

Hazardous Materials/Hazardous Waste

AM-HAZ-1a: Appropriate spill containment and clean-up kits shall be kept on site during construction and maintained during the operation of SF-B and GT-A-1.

AM-HAZ-1b: 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 the County of Riverside. The Applicant shall be responsible for implementing the approved plan.

The plan shall include:

- Introduction to the plan that identifies business activities;
- Identification of owner/operator with contact information;
- A hazardous materials inventory statement listing all hazardous materials used during construction and operation;
- A facility map;
- 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.

AM-HAZ-1c: During construction of SF-B and GT-A-1, Best Management Practices (BMPs) shall include:

- Keeping materials in their original containers with the original manufacturer‘s label and resealed when possible;
- Avoiding excessive on-site inventories of chemicals; procure and store only the amounts needed for the job;
- Following manufacturer's recommendation for proper handling and disposal;
- Conducting routine inspections to ensure that all chemicals on site are being stored, used, and disposed of appropriately;
- 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;
- Performing fueling of vehicles and equipment in locations that are protected from spillage onto exposed ground surface
- 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

- Maintaining Material Safety Data Sheets (MSDSs) available on the site for use during Project construction and operation.

AM-HAZ-1d: A Spill Prevention Control and Countermeasures (SPCC) Plan shall 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 and the County of Riverside. The Applicant shall be responsible for implementing the approved plan.

The plan shall include requirements specified by 40 CFR Part 112 as follows:

- A description of the facility;
- A self-certification statement;
- A record of plan review and amendments; and
- A list of oil/petroleum product storage containers associated with the facility, identification of the secondary containment systems; identification of spill control measures to be implemented; inspection types and frequency, testing procedures to ensure the integrity of petroleum containers, recordkeeping procedures, personnel training; security; emergency procedures and notifications in case of a spill; a contact list in case of a spill; and SPCC spill reporting requirements.

AM-HAZ-1e: 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 to 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. The plan shall include the following:

- An organizational structure;
- A description of site characteristics and a job hazard analysis;
- 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;
- Training requirements and documentation of training;
- Medical surveillance;
- Personal protective equipment;
- Exposure monitoring;
- Heat stress;
- Spill containment;
- Decontamination;
- Emergency response;

- Relevant standard operating procedures; and
- Confined space (if relevant).

Potential Munitions and Explosives of Concern

AM-HAZ-2: Based on the preliminary information provided in the Phase I ESA and the Class I cultural inventory of the Project Site, the Applicant proposes to take the following steps to better determine the nature and extent of potential MEC issues and then take appropriate corrective action measures. The first step is to better determine the history of military activities at the specific proposed Project locations that may have been affected by those activities. This would 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 may include consultations with Department of Defense personnel and archival research. With that more comprehensive understanding, the Applicant will propose, as necessary, further appropriate above and below-ground assessments, under the direction of an expert consultant team, to delineate areas for further investigation and then removal. The Applicant, under direction from the BLM, will determine which site-specific in-field investigative techniques and methodologies will be utilized to investigate and resolve potential MEC issues prior to Project construction. Finally, all construction workers will 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.

Emergency Evacuation and Emergency Response Plan

AM-HAZ-3: The Applicant shall provide the County of Riverside with a Project-specific Emergency Response and Inventory Plan prior to initiating construction. The Applicant shall prepare the plan for approval by the BLM and the County of Riverside. The Applicant shall be responsible for implementing the approved plan. The plan shall include the following:

- An evacuation plan;
- A list of emergency contacts;
- A list of emergency resources;
- Any special arrangements with emergency responders;
- Relevant emergency procedures;
- Post-incident reporting/recording responsibilities;
- Identification of site components that may be vulnerable to earthquakes with procedures for inspection or isolation after a seismic event;
- A list of on-site emergency equipment; and
- An employee training plan that documents training areas and capabilities.

Wildfire

AM-HAZ-4: Project facilities shall 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 will be completed prior to initiation of construction.

The Applicant and SCE shall have a Project-specific fire prevention plan in place during construction, operation and decommissioning of the Project. This plan shall comply with applicable County of Riverside regulations and would be coordinated with the local Fire Department in the Chuckwalla Valley at Tamarisk Park. During construction, the following steps shall be taken to identify and control fires and similar emergencies.

- A network of access roads shall be constructed for adequate fire control and emergency vehicle access to the site.
- 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.
- Project staff shall monitor fire risks during construction and operation to ensure that prompt measures are taken to mitigate identified risks. The Applicant staff vehicles would be equipped with fire extinguishers.
- 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.

Intentionally Destructive Acts

AM-HAZ-5: An emergency response plan and site security plan shall be completed for the Project facilities. Due to the sensitive nature of information contained in these plans, these documents will not be available for general public review. These plans shall be developed in accordance with the BLM and DOE requirements.

Red Bluff Substation A

Potential Munition and Explosives of Concern

AM-HAZ-2: As described above.

Hazardous Materials/Hazardous Waste

AM-HAZ-6a: SCE shall implement standard fire prevention and response practices for the construction activities where hazardous materials are in use. SCE shall be responsible for implementing the approved plan. The plan shall include the following:

- The purpose and applicability of the plan; and
- Procedures for fire prevention and response that include identification of site-specific and operational risks, tools and equipment needed, and fire prevention and safety considerations; a red-flag warning system, activity levels, fire-related training, and coordination with BLM and County of Riverside.

AM-HAZ-6b: As applicable, SCE shall follow fire codes per California Department of Forestry and Fire Protection (2008) requirements for vegetation clearance during construction of the Project to reduce the fire hazard potential.

AM-HAZ-6c: Hazardous materials and waste handling shall be managed in accordance with the following SCE plans and programs. SCE shall be responsible for implementing the following plans:

- *Spill Prevention, Countermeasure, and Control Plan (SPCC Plan).* In accordance with Title 40 of the CFR, Part 112, SCE shall prepare a SPCC for the proposed substation, as applicable. The plan shall include requirements specified by 40 CFR Part 112 as follows:
  - A description of the facility;
  - A self-certification statement;
  - A record of plan review and amendments; and
  - A list of oil/petroleum product storage containers associated with the facility, identification of the secondary containment systems; identification of spill control measures to be implemented; inspection types and frequency, testing procedures to ensure the integrity of petroleum containers, recordkeeping procedures, personnel training; security; emergency procedures and notifications in case of a spill; a contact list in case of a spill; and SPCC spill reporting requirements.
- *Hazardous Materials Business Plans (HMBPs).* Prior to operation of new or expanded substations, SCE shall prepare or update and submit, in accordance with the Emergency Planning & Community Right to Know Act, an HMBP, as applicable. SCE shall be responsible for implementing the approved plan. The plan shall include:
  - Introduction to the plan that identifies business activities;
  - Identification of owner/operator with contact information;
  - A hazardous materials inventory statement listing all hazardous materials used during construction and operation;
  - A facility map;
  - 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.
- *Storm Water Pollution Prevention Plan (SWPPP):* A Project-specific construction SWPPP shall be prepared and implemented prior to the start of construction of the Red Bluff Substation A. SCE shall be responsible for implementing the approved plan. The plan shall include:
  - Objectives of the SWPPP
  - A vicinity map;
  - Pollutant source identification and BMPs selection;
  - Water pollution control drawings;
  - Construction BMP maintenance, inspection and repair;
  - Post-construction storm water management practices;
  - Training;
  - List of subcontractors;

- Plans and permits
- Site inspections;
- Discharge reporting;
- Record keeping and reports;
- Sampling and analysis plan for sediments; and
- Sampling and analysis plan for non-visible pollutants.

- *Health and Safety Program:* SCE shall prepare and implement a health and safety program to address site-specific health and safety issues. SCE shall be responsible for implementing the approved plan. The plan shall include:
  - An organizational structure;
  - A description of site characteristics and a job hazard analysis;
  - 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;
  - Training requirements and documentation of training;
  - Medical surveillance;
  - Personal protective equipment;
  - Exposure monitoring;
  - Heat stress;
  - Spill containment;
  - Decontamination;
  - Emergency response;
  - Relevant standard operating procedures; and
  - Confined space (if relevant).
- *Hazardous Materials and Hazardous Waste Handling:* A Project-specific hazardous materials management and hazardous waste management program plan shall be developed prior to initiation of the Project. Material Safety Data Sheets would be made available to all Project workers. SCE shall be responsible for implementing the plan that shall include:
  - Introduction to the plan that identifies business activities;
  - Identification of owner/operator with contact information;
  - A hazardous materials inventory statement listing all hazardous materials used during construction and operation;
  - A facility map; and
  - 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.

- *Emergency Release Response Procedures:* An Emergency Response Plan as part of the Hazardous Materials Business Plan detailing responses to releases of hazardous materials shall be developed prior to construction activities. All construction personnel, including environmental monitors, shall be aware of state and federal emergency response reporting guidelines. SCE shall be responsible for implementing the plan.

AM-HAZ-6d: Hazardous materials shall be used or stored and disposed of in accordance with Federal, State, and local regulations.

AM-HAZ-6e: The Substation shall be grounded to limit electric shock and surges that could ignite fires.

AM-HAZ-6f: All construction and demolition waste shall be removed and transported to an appropriately permitted disposal facility.

Airport

AM-HAZ-7: SCE shall comply with all requirements specified in a permit received from the FAA for construction of the 185-foot microwave tower associated with the Desert Center Communications Center.

Emergency Evacuation and Emergency Response Plan

AM-HAZ-8: SCE shall provide the County of Riverside with a Project-specific Emergency Response and Inventory Plan prior to initiating construction. SCE shall be responsible for implementing the approved plan. The plan shall include the following.

- An evacuation plan;
- A list of emergency contacts;
- A list of emergency resources;
- Any special arrangements with emergency responders;
- Relevant emergency procedures;
- Post-incident reporting/recording responsibilities;
- Identification of site components that may be vulnerable to earthquakes with procedures for inspection or isolation after a seismic event;
- A list of on-site emergency equipment; and
- An employee training plan that documents training areas and capabilities.

Wildfire

AM-HAZ-9: Project facilities shall 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 substation shall be completed by SCE prior to initiation of construction. The plan shall include the following:

- The purpose and applicability of the plan; and
- Procedures for fire prevention and response that include identification of site-specific and operational risks, tools and equipment needed, and fire prevention and safety considerations; red-flag warning system, activity levels, fire-related training, and coordination with BLM and County of Riverside.

Intentionally Destructive Acts

AM-HAZ-10: Project facilities shall 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 substation shall be completed by SCE prior to initiation of construction.

CEQA Significance Determination

Solar Farm Layout B

During construction, operation and maintenance, and decommissioning of SF-B, hazards to the public or the environment may be posed by transportation, use, or disposal of hazardous materials, including (but not limited to) gasoline, diesel fuel, oil, paints, chemicals, or waste oils and construction waste (CEQA significance criteria H-1, H-2, H-3, and H-6). The Applicant's use of appropriate spill containment and cleanup kits would contain accidental hazardous material releases (AM-HAZ-1a). The Applicant's Hazardous Materials and Waste Management Plan (AM-HAZ-1b) would ensure that hazardous materials and wastes would be handled in a safe and environmentally sound manner to prevent releases. Best management practices by the Applicant would ensure that hazardous materials used during construction, operation, and maintenance of SF-B would not be accidentally released into the environment (AM-HAZ-1c). During construction, operation, and decommissioning of SF-B, hazards to the public or the environment also could be posed by the improper transport, storage, use, or disposal of hazardous materials. The Applicant's SPCC would ensure that the Applicant minimizes, avoids, or cleans up unforeseen spills of hazardous materials (AM-HAZ-1d). Potential impacts from hazardous materials and hazardous waste would be less than significant with mitigation.

To ensure worker health and safety during construction, maintenance and operation, and decommissioning (CEQA significance criterion H-7), the Applicant would complete a site-specific health and safety plan (AM-HAZ-1e). Potential impacts to worker health and safety would be less than significant with mitigation.

As a result of past uses in the region that include SF-B, the Applicant proposes to take steps to delineate the nature and extent of potential MEC issues (CEQA significance criterion H-4). AM-HAZ-2 would resolve potential MEC issues before construction.

During construction, operation and maintenance, and decommission of SF-B, activities that could affect traffic and emergency routes include equipment and materials delivery, construction equipment movement, and worker commutes (CEQA significance criterion H-5). Implementation of an Applicant-prepared Emergency Evacuation and Emergency Response Plan (AM-HAZ-3) would ensure no impacts to existing emergency response plans and evacuation plans. Potential impacts to adopted emergency response plans and emergency evacuation plans would be less than significant with mitigation.

During construction, operation and maintenance, and decommissioning of SF-B, wildfires may be caused by combustion of native materials, smoking, and refueling and operating vehicles and other equipment off road (CEQA significance criterion H-8). The Applicant's Fire Management Plan (AM-HAZ-4) establishes standards and practices that would minimize the risk of a wildfire and, in the event of fire, provide for immediate suppression and notification. Potential impacts from wildfire would be less than significant with mitigation.

Currently, there are no airports within 1 mile from SF-B (CEQA significance criteria H-9). Impacts to airports would be less than significant without mitigation.

SF-B could be subject to intentionally destructive acts (sabotage or terrorism) that could cause potential human and environmental impacts (fire, explosion, missile, or other impact force). Although not a CEQA significance criterion (H-10), an emergency response plan and site security plan shall be completed for SF-B by the Applicant (AM-HAZ-5). In light of the sensitive nature of information contained in these plans, these documents will not be available for general public review. These plans shall be developed in accordance with the BLM and DOE requirements and would reduce impacts to less than significant.

Gen-Tie Line A-1

During construction, operation and maintenance, and decommissioning of GT-A-1, hazards to the public or the environment may be posed by transportation, use, or disposal of hazardous materials, including (but not limited to) gasoline, diesel fuel, oil, paints, chemicals or waste oils, and construction waste (CEQA significance criteria H-1, H-2, H-3, and H-6). The Applicant's use of appropriate spill containment and cleanup kits would contain accidental hazardous material releases (AM-HAZ-1a). The Applicant's Hazardous Materials and Waste Management Plan (AM-HAZ-1b) would ensure that hazardous materials and wastes would be handled in a safe and environmentally sound manner to prevent releases. Best management practices by the Applicant would ensure that use of hazardous materials during construction, operation, and maintenance of GT-A-1 would not be accidentally released into the environment (AM-HAZ-1c). During construction, operation, and decommissioning of GT-A-1, hazards to the public or the environment also could be posed by the improper transport, storage, use, or disposal of hazardous materials. The Applicant's SPCC would ensure that the Applicant minimizes, avoids, or cleans up unforeseen spills of hazardous materials (AM-HAZ-1d). Potential impacts from hazardous materials and hazardous waste would be less than significant with mitigation.

To ensure worker health and safety during construction, maintenance and operation, and decommissioning (CEQA significance criterion H-7), the Applicant would complete a site-specific health and safety plan (AM-HAZ-1e). Potential impacts to worker health and safety would be less than significant with mitigation.

As a result of past uses in the region that include GT-A-1, the Applicant proposes to take steps to delineate the nature and extent of potential MEC issues (CEQA significance criterion H-4). AM-HAZ-2 would resolve potential MEC issues before construction.

During construction, operation and maintenance, and decommission of GT-A-1, activities that could affect traffic and emergency routes include equipment and materials delivery, construction equipment movement, and worker commutes (CEQA significance criterion H-5). Implementation of an Applicant-prepared Emergency Evacuation and Emergency Response Plan (AM-HAZ-3) would ensure no impacts to existing emergency response plans and evacuation plans. Potential impacts to adopted emergency response plans and emergency evacuation plans would be less than significant with mitigation.

During construction, operation and maintenance, and decommissioning of GT-A-1, wildfires may be caused by combustion of native materials, smoking, refueling, and operating vehicles and other equipment off road (CEQA significance criterion H-8). The Applicant's Fire Management Plan (AM-HAZ-4) establishes standards and practices that would minimize the risk of a wildfire and, in the event of fire, provide for immediate suppression and notification. Potential impacts from wildfire would be less than significant with mitigation.

Currently, there are no airports within 1 mile from GT-A-1 (CEQA significance criterion H-9). Impacts to airports would be less than significant without mitigation.

GT-A-1 could be subject to intentionally destructive acts (sabotage or terrorism) could cause potential human and environmental impacts (fire, explosion, missile or other impact force). Although not a CEQA significance criterion (H-10), an emergency response plan and site security plan shall be completed for SF-B by the Applicant (AM-HAZ-5). In light of the sensitive nature of information contained in these plans, these documents will not be available for general public review. These plans shall be developed in accordance with the BLM and DOE requirements and would reduce impacts to less than significant.

Red Bluff Substation A

Hazardous Waste/Hazardous Materials

During construction, operation and maintenance, and decommissioning of Red Bluff Substation A, hazards to the public or the environment may be posed by the transportation, use, or disposal of hazardous materials, including (but not limited to) gasoline, diesel fuel, oil, paints, chemicals, or waste oils and construction waste (CEQA significance criteria H-1, H-2, H-3, and H-6). A fire prevention and response plan by SCE for construction, operation and maintenance, and decommissioning would minimize risks of fire (AM-HAZ-6a). Potential impacts from wildfire would be less than significant with mitigation.

During construction and decommissioning of Red Bluff Substation A, wildfires may be caused by combustion of native materials, smoking, refueling, and operating vehicles and other equipment off road (CEQA significance criteria H-8). The Applicant's Fire Management Plan (AM-HAZ-6b) establishes standards and practices that would minimize the risk of a wildfire and, in the event of fire, provide for immediate suppression and notification. Potential impacts from wildfire would be less than significant with mitigation.

During construction, operation and maintenance, and decommissioning of Red Bluff Substation A, hazards to the public or the environment may result from hazardous materials used and hazardous waste generated. SCE plans and programs (AM-HAZ-6c) as follows would ensure that hazardous materials and wastes would be handled in a safe and environmentally sound manner to prevent releases.

- Spill Prevention Control and Countermeasures Plan. Hazards to the public or the environment also could be posed by the improper transport, storage, use, or disposal of hazardous materials (CEQA significance criteria H-1, H-2, H-3, and H-6). SCE's SPCC Plan would ensure that SCE minimizes, avoids, or cleans up unforeseen spills of hazardous materials (AM-HAZ-6c). Potential impacts from accidental releases of petroleum products from the Red Bluff Substation A site would be less than significant with mitigation.
- Hazardous Materials Business Plan. During construction, operation and maintenance, and decommission of Red Bluff Substation A, activities that could affect traffic and emergency routes include equipment and materials delivery, construction equipment movement, and worker commutes (CEQA significance criterion H-5). Implementation of an Applicant-prepared Emergency Evacuation and Emergency Response Plan would ensure no impacts to existing emergency response plans and evacuation plans (AM-HAZ-6c and AM-HAZ-8). Potential impacts to adopted emergency response plans and emergency evacuation plans would be less than significant with mitigation.
- Stormwater Pollution Prevention Plan. Hazards to the public or the environment also could be posed by the accidental release of pollutants from the site into the environment (CEQA significance criteria H-1, H-2, H-3, and H-6). SCE's SWPP plan would ensure that SCE minimizes, avoids, or cleans up unforeseen spills of hazardous materials (AM-HAZ-6c). Potential impacts from accidental releases of pollutants from the Red Bluff Substation A site would be less than significant with mitigation.
- Health and Safety Plan. To ensure worker health and safety during construction, maintenance and operation, and decommissioning (CEQA significance criterion H-7), a site-specific health and safety plan would be completed by SCE (AM-HAZ-6c). Potential impacts to worker health and safety would be less than significant with mitigation.
- Emergency Release Response Procedures. Construction, operation and maintenance, and decommission of Red Bluff Substation A could result in accidental release of hazardous materials or hazardous waste. Implementation of the Hazardous Materials Business plan by SCE as detailed earlier would ensure no impacts from accidental hazardous materials or hazardous waste releases (AM-HAZ-6c). Potential impacts from accidental releases would be less than significant with mitigation.

During construction, operation and maintenance, and decommissioning of Red Bluff Substation A, hazardous materials used have the potential for being improperly stored (CEQA significance criteria H-1, H-2, H-3, and H-6). Proper storage in accordance with local, state, and federal regulations would ensure no impacts from accidental release (AM-HAZ-6d). Potential impacts from improperly stored hazardous materials would be less than significant with mitigation.

Red Bluff Substation A has the potential for generating electric shock and surges that could ignite wildfires (CEQA Criterion H8). Grounding Red Bluff Substation A during construction would reduce impacts from electric shock and surges (AM-HAZ-6f). Potential impacts from electric shock and surges would be less than significant with mitigation.

Potential Munitions and Explosives of Concern

As a result of past uses in the region that include Red Bluff Substation A, SCE proposes to take steps to delineate the nature and extent of potential MEC issues (CEQA significance criterion H-4). AM-HAZ-2 would resolve potential MEC issues before construction.

Airport

Construction, operation and maintenance, and decommissioning of the communication tower associated with the Desert Center Communications Center that is part of Red Bluff Substation A would increase airport safety hazards for the private use airfield located just more than a mile away (CEQA significance criterion H-9). Implementation of mitigation measures identified by the FAA as part of a permit sought for the Desert Center Communications Center tower would mitigate safety hazards (AM-HAZ-7). Impacts to the local private air strip would be less than significant with mitigation.

Emergency Evacuation and Emergency Response Plan

During construction, operation and maintenance, and decommission of Red Bluff Substation A, activities that could affect traffic and emergency routes include equipment and materials delivery, construction equipment movement, and worker commutes (CEQA significance criterion H-5). Implementation of an Applicant-prepared Emergency Evacuation and Emergency Response Plan would ensure no impacts to existing emergency response plans and evacuation plans (AM-H6c and AM-HAZ-8). Potential impacts to adopted emergency response plans and emergency evacuation plans would be less than significant with mitigation.

Wildfire

During construction, operation and maintenance, and decommissioning of Red Bluff Substation A, wildfires may be caused by combustion of native materials, smoking, refueling, and operating vehicles and other equipment off road (CEQA significance criterion H-8). SCE's Fire Management Plan (AM-HAZ-9) establishes standards and practices that would minimize the risk of a wildfire and, in the event of fire, provide for immediate suppression and notification. Potential impacts from wildfire would be less than significant with mitigation.

Intentionally Destructive Acts

Red Bluff Substation A could be subject to intentionally destructive acts (sabotage or terrorism) that could cause potential human and environmental impacts (fire, explosion, missile or other impact force). Although not a CEQA significance criteria (H-10), an emergency response plan and site security plan shall be completed for Red Bluff Substation A by SCE (AM-HAZ-10). In light of the sensitive nature of information contained in these plans, these documents will not be available for general public review. These plans shall be developed in accordance with the BLM and DOE requirements and would reduce impacts to less than significant.

Unavoidable Adverse Effects

Implementation of Alternative 1 would not result in unavoidable adverse impacts. Hazards to public health and safety would be mitigated as specified earlier in this section to prevent unavoidable impacts.

4.11.4 Alternative 2 – Alternate Action

Construction

Solar Farm Layout B

The impacts to public health and safety resulting from constructing SF-B would be the same as describe for Alternative 1.

Gen-Tie Line B-2

Construction of GT-B-2 within the 10-mile by 160-foot-wide transmission corridor plus additional fan-shaped areas at corners would result in a permanent disturbance of 11 acres along the route, as described in Section 2.2.4 (Alternative 2).

The impacts to public health and safety resulting from constructing GT-B-2 would be the same as those discussed under Alternative 1.

Red Bluff Substation B

Construction of Red Bluff Substation B includes the Substation itself and related elements. It would result in approximately 91 acres of permanent disturbance, including 75 acres for the Substation itself, as described in Section 2.2.4 (Alternative 2). Construction of the Substation also includes construction of the Desert Center Communications Center (not collocated with the Substation and less than 1 acre of disturbance), an access road from Eagle Mountain Road that would result in 1 acre of disturbance, an electrical distribution line (1 acre of disturbance) various tie-ins from the Substation to the Gen-Tie Line and to the regional transmission line (DPV1) adjacent to the Substation site (2 acres of disturbance), and 11 acres of associated drainage features.

The impacts to public health and safety resulting from constructing Red Bluff Substation B would be the same as those discussed for Red Bluff Substation A under Alternative 1

Summary of Construction Impacts

Construction impacts for Alternative 2 to public health and safety would be the same as those identified for Alternative 1.

Operation and Maintenance

Solar Farm Layout B

The impacts resulting from operating and maintaining SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

The impacts resulting from operating and maintaining GT-B-2 would be the same as those discussed for GT-A-1 under Alternative 1.

Red Bluff Substation B

The impacts resulting from operating and maintaining Red Bluff Substation B would be the same as those discussed for Red Bluff Substation A under Alternative 1.

Summary of Operation and Maintenance Impacts

Operation and maintenance impacts for Alternative 2 to public health and safety would be the same as those discussed for Alternative 1

Decommissioning

Solar Farm Layout B

The impacts resulting from decommissioning SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

The impacts resulting from decommissioning GT-B-2 would be the same as those discussed under Alternative 1.

Red Bluff Substation B

The impacts resulting from decommissioning Red Bluff Substation B would be the same as those identified under Alternative 1.

Summary of Decommissioning Impacts

Decommissioning impacts for Alternative 2 to public health and safety would be the same as those identified for Alternative 1.

Summary of Combined Impacts for Alternative 2

The summary of combined impacts for construction, operation and maintenance, and decommissioning Alternative 2 would be the same as detailed for Alternative 1. With mitigations detailed for Alternative 1, impacts would be reduced.

Applicant Measures and Mitigation Measures

Significance criteria and mitigations for Alternative 2 components (SF-B, GT-B-2 and Red Bluff Substation B) are the same as detailed for Alternative 1.

CEQA Significance Determination

Solar Farm Layout B

The CEQA significance determinations for SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

The CEQA significance determinations for GT-B-2 would be the same as those discussed under Alternative 1.

<u>*Red Bluff Substation B*</u>

The CEQA significance determinations for Red Bluff Substation B would be the same as those discussed for Red Bluff Substation A under Alternative 1.

Unavoidable Adverse Effects

Implementation of Alternative 2 would not result in any unavoidable adverse impacts. Hazards to public health and safety would be mitigated as specified earlier in this section to prevent unavoidable impacts.

4.11.5 Alternative 3 – Reduced Footprint Alternative

Construction

<u>*Solar Farm Layout C*</u>

Construction of SF-C would require clearance (land clearing) of approximately 3,045 acres. Development of the solar farm site is described in Section 2.2.4 (Alternative 3). In addition to the solar array, other permanent land uses include the Operation & Maintenance (O&M) Facilities, On-Site Substation, Visitor's Center, and internal roads would be constructed as part of this alternative.

Although less land is disturbed, the impacts to public health and safety resulting from constructing SF-C would be the same as those discussed for SF-B under Alternative 1.

<u>*Gen-Tie Line A-2*</u>

Construction of GT-A-2 within the 10.5-mile by 160-foot-wide transmission corridor plus additional fan-shaped areas at corners would result in permanent disturbance of 23 acres along the route, as described in Section 2.2.4 (Alternative 3).

The impacts resulting from constructing SF-C would be the same as those discussed for GT-A-1 under Alternative 1

<u>*Red Bluff Substation A*</u>

Construction of Red Bluff Substation A would be the same as were described under Alternative 1, except that a different access road for the Substation would be used. The access road to the Substation for this alternative would be from Kaiser Road via Aztec Road to the west (Access Road 1). Similar to the Access Road 2 under Alternative 1, improvements to this access road would require approximately 19 acres of disturbance.

The impacts resulting from constructing Red Bluff Substation A would be the same as those discussed for Red Bluff Substation B under Alternative 1

<u>*Summary of Construction Impacts*</u>

Construction impacts for Alternative 3 to public health and safety would be the same as those summarized for Alternative 1.

Operation and Maintenance

Solar Farm Layout C

The impacts resulting from operation and maintenance of SF-C would be the same as those discussed for SF-B under Alternative 1.

Gen-Tie Line A-2

The impacts resulting from operation and maintenance of GT-A-2 would be the same as those discussed for GT-A-1 under Alternative 1.

Red Bluff Substation A

The impacts resulting from operation and maintenance of Red Bluff Substation A would be the same as those discussed for Red Bluff Substation A under Alternative 1.

Summary of Operation and Maintenance Impacts

Operation and maintenance impacts for Alternative 3 to public health and safety would be the same as those summarized for Alternative 1.

Decommissioning

Solar Farm Layout C

The impacts resulting from decommissioning SF-C would be the same as those discussed for SF-B under Alternative 1. While less equipment would be removed from the site, the same plans for protecting worker safety and the environment would be required. Mitigation requirements would be the same as those summarized for SF-B.

Gen-Tie Line A-2

The impacts resulting from decommissioning GT-A-2 would be the same as those discussed for GT-A-1 under Alternative 1.

Red Bluff Substation A

The impacts resulting from decommissioning Red Bluff Substation A would be the same as those discussed for Red Bluff Substation B under Alternative 1.

Summary of Decommissioning Impacts

Decommissioning impacts for Alternative 3 to public health and safety would be the same as those summarized for Alternative 1.

Summary of Combined Impacts for Alternative 3

The summary of combined impacts for construction, operation and maintenance, and decommissioning Alternative 3 would be the same as described for Alternative 1. With mitigations detailed for Alternative 1, impacts would be reduced.

Applicant Measures and Mitigation Measures

Mitigations for Alternative 3 components (SF-C, GT-A-2 and Red Bluff Substation A) are the same as detailed for Alternative 1.

CEQA Significance Determination

Solar Farm Layout B

The CEQA significance determination for SF-C would be the same as those discussed for SF-B under Alternative 1.

Gen-Tie Line B-2

The CEQA significance determination for GT-A-2 would be the same as those discussed for GT-A-1 under Alternative 1.

Red Bluff Substation B

The CEQA significance determination for Red Bluff Substation A would be the same as those discussed for Red Bluff Substation B under Alternative 1.

Unavoidable Adverse Effects

Implementation of Alternative 3 would not result in unavoidable adverse impacts. Hazards to public health and safety would be mitigated as specified earlier in this section to prevent unavoidable impacts

4.11.6 Alternative 4—No Issuance of a Right-of-Way Grant and No Land Use Plan Amendment (No Action)

Under this alternative, the proposed Desert Sunlight Solar Farm Project (including the Solar Farm, Gen-Tie Line, and Red Bluff Substation) 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 the potential effects of hazardous and hazardous materials to public health and safety and the environment would not occur. The potential target presented by a solar project for Intentionally Destructive Acts would not exist. However, the land on which the Project is proposed would become available to other uses that are consistent with BLM's land use plan, including another solar project requiring a land use plan amendment. In addition, in the absence of this Project, other renewable energy projects may be constructed to meet state and federal mandates, and those projects would have similar impacts in other locations.

4.11.7 Alternative 5—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Unsuitable for Solar Energy Development (No Action with Plan Amendment)

Under this alternative, the proposed Desert Sunlight Solar Farm Project 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, 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 the CDCA Plan would be amended so no solar energy projects can be 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. Therefore, this No Action Alternative would not increase potential exposure to the public health and safety and the environment from hazards and hazardous materials from the construction, operation, and closure of the Proposed Project. However, in the absence of this Project, other solar energy projects may be constructed to meet state and federal mandates in other locations, and those projects would have similar impacts in other locations.

4.11.8 Alternative 6—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Suitable for Solar Development (No Action with Plan Amendment)

Under this alternative, the proposed Desert Sunlight Solar Farm Project would not be approved by the BLM and the BLM would amend the CDCA Plan to allow for other solar projects on the site. As a result, it is possible that another solar energy project could be constructed on the Project site.

Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. Construction and operation requirements for solar technologies vary; however, it is expected that all solar technologies require some grading and some infrastructure. The effects of the exposure of the public and environment to hazards and hazardous materials would need to be mitigated, to the extent practical, through mitigations proposed to reduce effects associated with hazards and hazardous materials as with the Proposed Project. Because it is expected that all solar technologies would use of hazardous materials and would introduce certain hazards to the public and environment, the impacts to public health and safety from the construction, operation, and closure of the alternative would likely be similar to under the proposed Project.

4.11.9 Cumulative Impacts

Geographic Scope of Cumulative Impact Analysis for Public Health and Safety/Hazardous Materials

The geographic area considered for cumulative impacts on Public Health and Safety/Hazardous Materials is within the I-10 corridor from Indio to Blythe, California. A number of alternative energy projects are projected to be located within the region, primarily east of the Project Study Area, that could contribute to a cumulative effect on public health and safety from hazardous materials. A few projects within the region are primarily concentrated near Blythe, California that, with the proposed action or alternatives, could contribute to cumulative impacts to the region.

Existing Cumulative Projects

Existing projects within the region that include an existing combined-cycle natural gas plant in Blythe, California, two prisons, and other facilities whose proximity to the proposed action are far enough from the Proposed Project and alternatives area that they would not contribute to a cumulative impact in the case of an accidental hazardous materials release. These past projects are not expected to contribute incrementally to hazardous materials management-related impacts.

Past, Present and Future Foreseeable Projects

For hazardous materials spills, worker and public health and safety issues that involve fire and emergency response related to the Proposed Action could result in a cumulative effect when combined with the incremental impacts other projects, including proposed renewable energy projects in the geographic area considered. Work safety, emergency response, and fire protection impact could occur in the event of a simultaneous emergency response to multiple locations such that those resources could be overwhelmed and could not respond effectively. The likelihood that all future projects in the geographic area, including the proposed action, would require emergency response services simultaneous is low.

Cumulative impacts could occur despite the many safeguards implemented to both prevent and control fires, hazardous materials releases, and injuries andaccidents, because of the great distances required for a response. 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. Although cumulative impacts theoretically are possible, they are likely low given the existing levels of service within the region.

Overall Conclusions

The potential for off-site impacts to public health and safety resulting from hazardous materials used at the proposed Desert Sunlight Project site is not significant based on the nature of the materials used and the engineering and administrative controls implemented to prevent and control accidental releases of hazardous materials related to the Project. The cumulative impacts would be the same for all three action alternatives. Implementation of emergency response plans and fire management plans in the event of an emergency would reduce impacts to a less than significant level. Therefore, and because there are no existing or future foreseeable facilities in the immediate proximity of the site that would use large amounts of hazardous chemicals, there is little likelihood of an accidental release of hazardous materials that would affect the region.

4.12 RECREATION

4.12.1 Methodology for Analysis

Impacts on recreational resources were assessed by determining the types of recreation uses in and around the proposed Project area, then determining the sensitivity of those uses to the proposed Project. Figure 4.12-1 shows the OHV Routes Closures Relative to SF-B.

4.12.2 CEQA Significance Criteria

Under CEQA, the proposed Project would have a significant impact on Recreation if it would:

RE-1	Disrupt recreation use or interfere with the public's right of access to the project area; or
RE-2	Prevent long-term recreation use or peak season use or impede or discourage existing recreation.

For the proposed Project, the following criteria were determined to be inapplicable or to result in no impact under alternatives:

- Conflict with applicable federal, state, or local recreation policies

  The proposed Project would not conflict with federal, state, or local recreation policies; therefore, there would be no impact.

- Increase the use of neighborhood and regional recreation facilities such that the physical deterioration of the facilities would be substantial or accelerated

  Because there is no neighborhood or regional recreation facilities within the proposed Project, there would be no impact.

- Include recreation facilities or require the construction or expansion of recreation facilities that might have an adverse physical effect on the environment

  Because there are no recreation facilities included in the proposed Project nor does the Project require the construction of recreation facilities, there would be no impact.

- Physically degrade existing recreation resources

  Because the proposed Project would not physically degrade existing recreation facilities, there would be no impact.

4.12.3 Alternative 1 – Proposed Action

Construction

<u>Solar Farm Layout B</u>

Construction of SF-B would develop 4,245 acres of generally undeveloped multiple-use BLM land as a solar farm. SF-B would overlap the three BLM-designated open routes for OHV and

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LEGEND

- Open OHV Route
- Closed OHV Route
- Existing OHV Route to be Closed
- Proposed New OHV Route
- Local Road (Paved)
- Solar Farm Boundary (Alternative B)

Adapted from: First Solar, 2010.

DESERT SUNLIGHT SOLAR FARM

Figure 4.12-1

OHV Travel Route Closures

other vehicle travel, such as "driving for pleasure" that traverse the Project area. These roads are: Kaiser Steel Road, an unnamed route that intersects Kaiser Steel Road, and an unnamed route that runs north-south between Kaiser Road and Power Line Road. All of these routes are located in the northern portion of SF-B. Kaiser Steel Road would be closed between the western fence of SF-B and Power Line Road and rerouted north-south along the western fence line to join the unnamed route to the north. A portion of the unnamed route would also be closed from the western fence of SF-B to where it intersects with Kaiser Steel Road (See Figure 4.12-1 for road closures). The other unnamed road would not be rerouted. Power Line Road, the other BLM designated open OHV route in the Project area, would pass through SF-B, but it would remain open to travel. Persons wishing to access areas east of SF-B could use Power Line Road as an alternative to the affected routes, minimizing access disruptions and any impediments to recreation.

A Solar Energy Visitors Center (Visitors Center) would be constructed just off the road at the main entrance to the Solar Farm Site. The Visitors Center would consist of an approximately 50-foot-by-50-foot (approximately 0.06 acre) building on a concrete pad that would include items such as a scale model of the Project and exhibits on solar power designed for both students and members of the general public. Given the rare to non-existent current use of the area for recreation other than OHV use, there could be a gain to recreation within the area with the construction of the visitor's center. This could result in a benefit to local business that does not now occur.

Gen-Tie Line A-1

GT-A-1 would be located in an area that does not contain designated recreational areas or recreational activity. There would be no impact related to the construction of GT-A-1 because no OHV travel routes would be affected.

Red Bluff Substation A

The Red Bluff Substation A is not located within or near an area that is designated for recreational activities. Impacts from construction of Red Bluff Substation A would be the same as those described for GT-A-1 because no OHV travel routes would be affected.

Summary of Construction Impacts

The construction of SF-B under Alternative 1 would close and reroute portions of three OHV routes; however, other travel options exist in the area. There are no OHV or travel routes within GT-A-1 and Red Bluff Substation A. Construction of the visitor's center could have beneficially impacts to the area. Construction of Alternative 1 would not have an impact on the project lands or recreation opportunities on Joshua Tree National Monument.

Operation and Maintenance

Solar Farm Layout B

The proposed operation and maintenance of SF-B would have the same impacts as those under SF-B construction because portions of three routes: Kaiser Steel Road, an unnamed road that intersects Kaiser Steel Road, and an unnamed road that intersects Power Line Road. Kaiser Steel Road would be closed to vehicular traffic during the operation and maintenance of the Solar Farm. However, only portions of these routes would be closed and alternative routes would be available to the public, minimizing access disruptions.

Fencing large areas like SF-B alters the OHV and other dispersed traffic patterns often preventing through travel and resulting in high level of visitor dissatisfaction. Also, developing this project will attract OHV and other recreation users to the boundary fences which may create safety concerns. Applicant will work with BLM staff, interested public, organizations, and agencies to develop signage and, if necessary, a travel management strategy for alternative access around the site is needed. This project component would prevent long-term recreation use along portions of Kaiser Steel Road and two other unnamed roads, impeding existing recreation along portions of this route until the project is decommissioned. However, Power Line Road would remain open, and there are no future plans to expand OHV travel or play opportunities in the Project area.

Gen-Tie Line A-1

GT-A-1 would be located in an area that does not contain designated recreational areas, OHV, or other recreational vehicle activity. Therefore, operation and maintenance impacts would be the same as those under the construction phase of GT-A-1.

Red Bluff Substation A

Red Bluff Substation A is not located within or near an area that is designated for recreational activities. There would be no impact because no OHV or recreational vehicular travel routes would be affected.

Summary of Operation and Maintenance Impacts

The operation and maintenance phase of Alternative 1 would have impacts similar to those under the construction phase of Alternative 1.

Decommissioning

Solar Farm Layout B

Decommissioning of SF-B would result in the reopening of the roads that were closed during the construction, maintenance, and operational phases of the proposed Project. Those portions of Kaiser Steel Road, an unnamed road that intersects Kaiser Steel Road, and an unnamed road that intersects Power Line Road would be reopened to OHV and other recreational vehicles.

Gen-Tie Line A-1

Decommissioning impacts would be similar to construction impacts described for GT-A-1.

Red Bluff Substation A

Decommissioning impacts would be similar to construction impacts described for Red Bluff Substation A.

Summary of Decommissioning Impacts

Following decommissioning, the three routes used for OHV and vehicular recreation travel would be reopened. While this would reduce impacts resulting from construction and operation of SF-B by returning these resources to their original condition, decommissioning would not necessarily improve these resources, resulting in no impact on recreational resources.

Summary of Combined Impacts for Alternative 1

The construction, operation and maintenance of Alternative 1 with SF-B, GT-A-1 and Red Bluff Substation A, would convert 4,408.4 acres of BLM-administered land to use for electric power generation and distributions. The construction of Alternative 1 would require closure of a portion of Kaiser Steel Road and two unnamed routes within SF-B. These routes could be reopened at decommissioning. Power Line Road will remain open and provides and alternate route of travel to areas east of SF-B.

Application Measures and Mitigation Measures

No mitigations, project design features, BMPs, or other measures related to recreation would be implemented.

CEQA Significance Determination

Solar Farm Layout B

Construction impacts would be less than significant for criteria RE-1 and RE-2. With regard to RE-1, the closure of portions of three roads during the construction, operation, and maintenance phases of SF-B, may disrupt recreation use or interfere with the public's right of access to the Project area as well as prevent long-term recreation use or peak season use or impede or discourage existing recreation with regard to RE-2. Because the remaining open routes would provide an alternative to the use of this road and closure of the route would not significantly limit public travel, impacts to recreation would be less than significant.

Operation and maintenance impacts would be less than significant for criteria RE-1 and RE-2 for the same reason as stated above, under the construction phase of SF-B. The reasons for these determinations are the same as those described above for construction impacts.

Impacts to recreation would be beneficial during decommissioning with regard to RE-1 and RE-2 because the three routes used for OHV and vehicular recreational travel would be reopened.

Gen-Tie Line A-1

Impacts resulting from construction, maintenance, operation and decommissioning of GT-A-1 would be the same as those under the construction phase of Alternative 1 because GT-A-1 is not in an area that contains designated recreational areas or recreational activity. Impacts would be less than significant.

Red Bluff Substation A

Impacts resulting from construction, maintenance, operation and decommissioning of Red Bluff Substation A would be the same as those under the construction phase of Alternative 1 because Red

Bluff Substation A is not located in an area that contains designated recreational areas or recreational activity. Impacts would be less than significant.

Unavoidable Adverse Effects

There are no unavoidable significant impacts under Alternative 1 because the proposed Project components are not within recreation use areas or, with regard to SF-B, impacts to recreation due to the proposed Project activities would result in less than significant impacts to recreational activities.

4.12.4 Alternative 2 – Alternate Action

Construction

Solar Farm Layout B

The impacts resulting from constructing SF-B would be the same as those discussed under construction of SF-B under Alternative 1.

Gen-Tie Line B-2

Although the route for the construction of GT-B-2 is different, impacts resulting from constructing GT-B-2 would be the same as those discussed for construction of GT-A-1 under Alternative 1.

Red Bluff Substation B

Impacts resulting from constructing Red Bluff Substation B under Alternative 2 would be similar to those discussed for constructing Red Bluff Substation A under Alternative 1.

Summary of Construction Impacts

The construction of Alternative 2 with SF-B, GT-B-2 and Red Bluff Substation B, would have impacts similar to those described under Alternative 1.

Operation and Maintenance

Solar Farm Layout B

The impacts resulting from operating and maintaining SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

The impacts resulting from operating and maintaining GT-B-2 would be similar to those discussed for GT-A-1 under Alternative 1.

Red Bluff Substation B

The impacts resulting from operating and maintaining GT-B-2 would be similar to those discussed for GT-A-1 under Alternative 1.

Summary of Operation and Maintenance Impacts

The operation and maintenance of Alternative 2 with SF-B, GT-B-2 and Red Bluff Substation B, would have impacts similar to those described for Alternative 1.

Decommissioning

Solar Farm Layout B

The impacts resulting from decommissioning SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

The impacts resulting from decommissioning GT-B-2 would be similar to those discussed for GT-A-1 under Alternative 1.

Red Bluff Substation B

The impacts resulting from decommissioning Red Bluff Substation B would be similar to those discussed for Red Bluff Substation A under Alternative 1.

Summary of Decommissioning Impacts

Decommissioning impacts under Alternative 2 with SF-B, GT-B-2 and Red Bluff Substation B would be similar to those described for Alternative 1.

Summary of Combined Impacts for Alternative 2

The combined impacts of Alternative 2 with SF-B, GT-B-2 and Red Bluff Substation B, would be similar to those described for Alternative 1.

Applicant Measures and Mitigation Measures

No mitigations, project design features, BMPs, or other measures related to recreation would be implemented

CEQA Significance Determination

Solar Farm Layout B

The CEQA significance determination for SF-B would be the same as that discussed under Alternative 1.

Gen-Tie Line B-2

The CEQA significance determination for GT-B-2 would be similar to that discussed for GT-A-1 under Alternative 1.

Red Bluff Substation B

The CEQA significance determination for Red Bluff Substation B would be similar to that discussed for Red Bluff Substation A under Alternative 1.

Unavoidable Adverse Effects

No unavoidable significant impacts would result from the implementation of Alternative 2.

4.12.5 Alternative 3 – Reduced Footprint Alternative

Construction

Solar Farm Layout C

Impacts from construction of SF-C would be similar to those described for SF-B except that there would be no impact to OHV travel or recreational activities because construction of SF-C would not require that any OHV routes be closed or rerouted.

Gen-Tie Line A-2

Although the route for the construction of GT-A-2 has a different route, impacts resulting from constructing GT-A-2 would be similar to those discussed for GT-A-1 under Alternative 1.

Red Bluff Substation A

The impacts resulting from constructing Red Bluff Substation A would be the same as those discussed under Alternative 1. The impacts would not change due to Access Road 2, coming from the east via Chuckwalla Valley Road, Corn Springs Road, and a pipeline access road.

Summary of Construction Impacts

The construction of Alternative 2 with SF-C, GT-A-2 and Red Bluff Substation A, would have impacts similar to those described under Alternative 1.

Operation and Maintenance

Solar Farm Layout C

Impacts from operation and maintenance of SF-C would be similar to those described for SF-B with the exception that there would be no impact to OHV travel or recreational activities because the three OHV routes in the vicinity would not be closed or rerouted.

Gen-Tie Line A-2

Impacts from operation and maintenance of GT-A-2 would be similar to those described for GT-A-1 under Alternative 1.

Red Bluff Substation A

The impacts resulting from operating and maintaining Red Bluff Substation A would be the same as those discussed under Alternative 1. The impacts would not change due to Access Road 2.

Summary of Operation and Maintenance Impacts

The operation and maintenance impacts of Alternative 3 with SF-C, GT-A-2, and Red Bluff Substation A would be similar to those described for Alternative 1.

Decommissioning

Solar Farm Layout C

Impacts from decommissioning SF-C would be similar to those described for SF-B under Alternative 1 with the exception that there would be no impact to OHV travel or recreational activities and no road closures because the OHV routes in the area would not be closed or rerouted.

Gen-Tie Line A-2

Impacts from decommissioning GT-A-2 would be similar to those described for GT-A-1 under Alternative 1.

Red Bluff Substation A

The impacts resulting from decommissioning Red Bluff Substation A would be the same as those discussed under Alternative 1. The impacts would not change due to Access Road 2.

Summary of Decommissioning Impacts

The decommissioning impacts of Alternative 3 with SF-C, GT-A-2, and Red Bluff Substation A, would be similar to those described for Alternative 1.

Summary of Combined Impacts for Alternative 3

The combined impacts of Alternative 3 with SF-C, GT-A-2 and Red Bluff Substation A would be similar to those described for Alternative 1 except that there would be no impact to OHV or recreational activities as construction of SF-C would not require that the three OHV routes in the vicinity be closed in rerouted.

Applicant Measures and Mitigation Measures

No mitigations, project design features, BMPs, or other measures related to recreation would be implemented

CEQA Significance Determination

Solar Farm Layout C

The significance determination would be similar to that described for SF-B under Alternative 1 expect that there would be no impact to OHV and recreational activities because there would be no road closures or rerouting under Alternative 3.

Gen-Tie Line A-2

The significance determination for GT-A-2 would be similar to that described for GT-A-1 under Alternative 1.

Red Bluff Substation A

The CEQA significance determination for Red Bluff Substation A would be the same as that discussed under Alternative 1. The impacts would not change due to Access Road 2.

Unavoidable Adverse Effects

No unavoidable significant impacts would result from the implementation of Alternative 3.

4.12.6 Alternative 4 – No Issuance of a Right-of-Way Grant (No Action)

Under this alternative, the proposed Desert Sunlight Solar Farm Project 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, which includes the Gen-Tie Lines and the proposed Red Bluff Substation sites, 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. As a result, there would be no changes in recreation activities within the proposed Project area. In addition, in the absence of this project, other renewable energy projects may be constructed to meet state and federal mandates, and those projects would have similar impacts in other locations.

4.12.7 Alternative 5 – No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Exclude Solar Energy Development on the Site (No Action with Plan Amendment)

Under this alternative, the proposed Desert Sunlight Solar Farm Project would not be approved by the BLM and the BLM would amend the CDCA Plan to make the proposed site, including the Gen-Tie lines and proposed Red Bluff Substation sites, unavailable for future solar energy development. 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 the CDCA Plan would be amended to make the area unavailable for future solar energy development, 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 increase in traffic. As a result, this no action alternative would not result in impacts to recreation, OHV and other recreational vehicle travel under the proposed Project. However, in the absence of this project, other projects (including other non-solar renewable energy projects) may be constructed on this site or others to meet state and federal mandates, and those projects would have similar impacts on recreation on this or other locations.

4.12.8 Alternative 6 – No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Allow Solar Development on the Site (No Action with Plan Amendment)

Under this alternative, the proposed Desert Sunlight Solar Farm Project would not be approved by the BLM, and the BLM would amend the CDCA Plan to allow for other solar projects on the site. As a result, it is possible that another solar energy project could be constructed on the Project site. Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. As a result, impacts to recreation from the construction and operation of the solar project would likely be similar to the recreation issues as the proposed Project.

As such, this No Action Alternative could result in impacts to recreation activities similar to the impacts under the proposed Project.

4.12.9 Cumulative Impacts

Geographic Extent

The geographic extent for the consideration of cumulative impacts to recreation is the California Desert District, as this is the area covered by the BLM's CDCA, the document that addresses recreation within the proposed Project area.

In addition, an analysis of cumulative impacts to recreation should take into account a wide area because the large amount of applications for development of renewable energy facilities could require the reduction or prevention of recreational roads or areas. Table 3.18-1 lists proposed energy projects in the California Desert District on BLM land and includes 125 projects that would cover approximately 1,001,603 acres (BLM 2009).

The criteria by which recreation impacts would be cumulatively considered significant are the same as those identified in Section 4.12.2.

Existing Cumulative Conditions

Past development near the proposed Project area, which includes the Red Bluff Substation and gen-tie area are those projects listed in Table 3.18-2. Many recreational opportunities are on lands in eastern Riverside County, along the I-10 corridor.

These existing projects illustrate the recreational uses of the area which are OHV and passenger vehicle pleasure driving, and Long Term Visitor Areas (LTVA) where recreationists can stay during the winter in RVs for up to seven months. A nearby attraction is the General Patton Museum at Chiraco Summit. The Museum is on BLM land but is operated by a nonprofit group.

Although the proposed Project area is nearly surrounded by Joshua Tree National Park, there are no roads or visitor access points into the park in that area, and little or no visitor use of that portion of the park. As such, this portion of Joshua Tree National Park surrounding the proposed Project area has little recreation activity.

Future Foreseeable Projects

Foreseeable Projects in the Project Area

Table 3.18-3 lists foreseeable projects in the proposed Project area, which is the I-10 corridor in eastern Riverside County. As shown in the table, over 25 projects are proposed in the project area, nearly half of which have been approved or are under construction and over 20 of which are renewable energy projects.

Several of the future projects are residential in nature and include recreational facilities. The proposed Mojave Trails National Monument, which would protect and provide recreational opportunities on approximately 941,000 acres of federal land, would increase the amount of recreational opportunities in the region. The proposed 500-mile racetrack that would be developed as part of the Chuckawalla Valley Raceway would also add to the existing recreational opportunities in the area. The Paradise Valley new Town Development would provide recreational uses and facilities for those within the self-contained community.

Foreseeable Renewable Projects in the California Desert

Table 3.18-1 lists foreseeable renewable energy projects on BLM land in the California Desert District. The proposed Project would not contribute significantly to any collective impact on recreation because it would have a less than significant impact on recreation in the region.

Overall Conclusion

The proposed project would not make a considerable contribution to a cumulative impact because the combined impact of existing and reasonably foreseeable future projects on recreation is not significant.

4.13 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

4.13.1 Methodology for Analysis

In Sections 4.13.3 through 4.13.8, the direct and indirect impacts of each alternative are assessed relevant to socioeconomic concerns and the baseline conditions presented in Section 3.13. The analysis provided in Section 4.13.9 describes the potential cumulative socioeconomic effects as a result of the Project alternatives in combination with other plans, policies, and projects that would occur in the area, as described in Section 3.18.

Table 4.13-1
Comparison of Action Alternative Features Relevant to Socioeconomics

Indicator	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Employment	Net increase	Net increase	Net increase	No net change	No net change	No net change
Income	Net increase	Net increase	Net increase	No net change	No net change	No net change
Demand for Housing	No net change	No net change	No net change	No net change	No net change	No net change
Government Services	Potential indirect net increase	Potential indirect net increase	Potential indirect net increase	No net change	No net change	No net change
Environmental Justice	No net change	No net change	No net change	No net change	No net change	No net change
Non-Market Values	Potential net decrease	Potential net decrease	Potential net increase	No net change	No net change	No net change

4.13.2 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 socio-economics, public services, or utilities; or

SE-8 Disrupt existing utility systems.

For the proposed Project, all of the CEQA significance criteria listed above were determined to be inapplicable or to result in no impact.

4.13.3 Alternative 1 – Proposed Action

Construction

Solar Farm Layout B

Impacts associated with construction of SF-B would be temporary and not result in long-term adverse impacts on the region or local communities of Desert Center, Lake Tamarisk Park, and Eagle Mountain Village.

Access would be maintained to community facilities and services during construction of SF-B. The number of vehicles on local roads for construction material deliveries would increase by roughly 46 vehicles per day on average (roughly 45 deliveries per day for the Desert Sunlight Solar Farm (DSSF) on average and a total of 241 truck deliveries for the on-site substation over the construction period). Employee commuter traffic for construction of the DSSF and Gen-Tie Line is expected to increase the number of vehicles on the road during peak morning and evening commuter hours by an additional 154 trips per day. Given the capacity of I-10 along the delivery and commute corridor, the quality of the interchange, and the light traffic along Kaiser Road, it is unlikely that this additional traffic would cause delays or inhibit access during the 26 months of construction, although isolated delays could occur. In addition, no decline in the projected level of service at key intersections surrounding the proposed Project is anticipated (see Table 4.15-4, Project Impact on Delay and Level of Service [LOS] at Intersections). During construction for each component of the Project, anticipated deliveries, the proposed number of vehicles per day, and construction timing and duration would be made available to the public to allow residents and visitors to better plan for such delays. This would be incorporated into the Project implementation/construction requirements.

The majority of the Project construction workforce would be employed by residents of Riverside County to construct the DSSF. The DSSF construction workforce is expected to average approximately 350 to 400 craft workers over the 26-month DSSF construction period, with a peak on-site craft workforce of approximately 500 craft workers during months 5 through 16 of the construction period. In addition to craft workers, an average of 40 management and non-craft employees are expected on-site. This equates to an average of 390 to 440 and a peak of 540 total on-site workers for the DSSF construction (First Solar 2010). The construction workforce would be recruited from within Riverside County and elsewhere in the surrounding region as much as practicable. Employment of construction personnel would be beneficial to local businesses and the local economy through increased expenditure of wages for goods and services. Construction personnel would purchase food, beverages, and other commodities, which would provide economic benefit to the local economy. These expenditures and benefits could accrue to the local economies surrounding the proposed Project or the local economies of workers' places of residence. However, the influx of the construction workforce would alter the isolated, quiet, and sparsely populated character of the communities surrounding the proposed Project site during the construction period, which would be a temporary impact to the quality of life to residents of Desert Center, Lake Tamarisk Park, and Eagle Mountain.

Tax revenues collected from the construction of the proposed Project are expected to result in additional revenue to Riverside County of approximately $15 million over the construction period, including approximately $10 million of sales taxes and $5 million from assessments for transportation projects. New property tax revenues resulting from the proposed Project are expected to total approximately $12 million over the first 25 years of the proposed Project's lifetime (First Solar 2010).

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 Sunlight has indicated that the labor force for the proposed Project would be derived from Riverside County to the extent possible. Based on Table 3.13-4 in Section 3.13, the peak level of employment for these facilities would represent about 0.78 percent of construction employment in Riverside County. The peak labor force would represent approximately 1.3 percent of the May 2009 Riverside County (Riverside-San Bernardino-Ontario Metropolitan Statistical Area) (BLS 2010b) employment typical to solar projects, assuming the labor force needed for the proposed Project would require the following construction labor categories typical to solar projects: surveyors; operators; construction laborers; carpenters; plumbers, pipefitters, and steamfitters; paving crew; electricians; cement finishers; ironworkers; millwrights; construction managers; supervisors/managers of construction trades and extraction workers; helpers - construction trades; and engineers. Because this is such a small portion of the regional available labor force, it is assumed that minimal population in-migration would occur as a result of construction at SF-B. Therefore, notable impacts would not occur to existing population levels or employment distribution within the study area from the proposed SF-B.

Impacts from construction on public services and facilities are usually associated with population in-migration and growth in an area, which increase the demand for a particular service and lead to the need for expanded or new facilities. An increase in population in any given area may result in the need to develop new or alter existing public services and associated facilities to accommodate increased demand. Since most of the workforce would be derived from Riverside County, which as of 2008 had over 864,000 workers in its total workforce, no permanent in-migration is anticipated, and the proposed DSSF would not result in population growth that could generate a need for expanded school facilities in the county. Similarly, it also is unlikely that the construction workforce for SF-B would require housing in excess of the existing supply. Based on the data provided in Section 3.13, 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, the locations of approximately 35 lodging facilities, offering an average of 55 rooms per facility.

The fire prevention plan that would be in place during construction would ensure adequate access in case of emergencies and would protect against the possibility of fires generated by construction of the DSSF and operation of the DSSF facility, which would minimize the need for additional fire protection to the site. In addition, on-site security, including fencing, lighting, and a security booth that would be manned 24 hours per day during both construction and operation of the SF-B, would minimize increased demand on law enforcement. Sunlight would also require all new employees to complete health and safety training and follow standard construction safety measures during construction of SF-B, which would minimize the incidence of increased demand for hospital or emergency services. Given that the construction workforce for SF-B would most likely already be employed in the regional construction industry in Riverside County 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.

During the approximately 26-month construction period, an estimated 1,300 to 1,400 acre-feet of water would be needed for soil compaction, dust control, and sanitary needs for construction of SF-B. Most of the construction water would be used during site grading, and the peak daily water demand during construction of the DSSF is estimated at approximately 1.3 million gallons per day (First Solar 2010). Sunlight anticipates using the nearby wells, which historically had been used by the Eagle Mountain Mine during the years that it produced iron ore, or installing a well on-site. Sampling and analysis to assess water sufficiency and quality at each active well would be conducted to ensure that wells would be operated at the appropriate capacity. If a new well were installed on-site, it would be operated such that water consumption would be consistent with water availability in the Chuckwalla Groundwater Basin. Therefore, construction of the SF-B would not change the ability of the water suppliers identified in Section 3.13 to serve the demands of the region.

The only anticipated construction wastes would be broken PV modules, wood, concrete, and miscellaneous packaging materials. Damaged PV modules would be returned to Sunlight's manufacturing facility in Ohio and recycled, so they would not become part of the waste stream in Riverside County. Construction wastes would be disposed of in accordance with local, state, and federal regulations, while portable toilets used during construction would be regularly pumped out and the waste would be hauled away and disposed of by appropriately licensed organizations. All construction wastes produced at the Project locations would be properly collected, recycled (if possible), treated (if necessary), and disposed of in an appropriate manner and in full compliance with all regulatory requirements, such as the Integrated Waste Management Act of 1989. The nearest landfill is in Desert Center (60 tons per day maximum capacity, 19.9 percent remaining) and Blythe (400 tons per day maximum capacity, 49.4 percent remaining) (California Department of Resources Recycling and Recovery 2010). The waste generated by the SF-B would occur over a 26-month period and would be dispersed among the available appropriate landfills, such that the daily waste exported off-site would be a fraction of the maximum daily throughput for any of the landfills administered by the Riverside County Waste Management Department.

Gen-Tie Line A-1

Construction of GT-A-1 would employ fewer workers from the regional economy, would generate less construction traffic to hinder access to public facilities and services, would generate less construction waste, and would require less water than SF-B. The employment of fewer construction workers would provide less of a benefit to the regional economy. The workforce for GT-A-1 is expected to average 25 employees over the 20-month Gen-Tie Line construction period, with a peak of approximately 60 employees. Employment of construction personnel would be beneficial to local businesses in adjacent communities through increased expenditure of wages for goods and services. These expenditures and benefits could accrue to the local economies surrounding the proposed Project or the local economies of workers' places of residence. However, the influx of the construction workforce would alter the isolated, quiet, and sparsely populated character of the communities surrounding the proposed Project site during the construction period, which would be a temporary impact to the quality of life to residents of Desert Center, Lake Tamarisk Park, and Eagle Mountain. Employment of construction personnel would also be beneficial to the regional economy through additional employment of residents within Riverside County. Construction personnel would purchase food, beverages, and other commodities, which would provide economic benefit to the local economy.

Because the number of construction workers required would represent a small portion of the regional available labor force (0.06 percent at peak), it is assumed that minimal population in-migration would be unlikely. Therefore, no noticeable adverse impacts would occur to existing population levels, employment distribution, or public facilities and services in Riverside County from the construction of GT-A-1.

The GT-A-1 would not present a barrier to local facilities and services. Given the capacity of I-10 along the delivery and commute corridor, the quality of the interchange, and the light traffic along Kaiser road, it is unlikely that additional traffic during the construction of GT-A-1 would cause delays or inhibit access during the 20 months of construction, although isolated delays could occur. At the peak of GT-A-1 construction, 40 workers would continue to take personal vehicles, and one shuttle bus with a capacity of 20 people would be used, for a total of 41 commute vehicles that would travel to the GT-A-1 construction area each day. In addition, a total of 240 material deliveries would generate truck traffic over the 20-month construction period. Information concerning construction timing and duration would be made available to the public to allow residents and visitors to better plan for any delays.

The fire prevention plan that would be in place during construction of SF-B also would apply to construction of GT-A-1, and would minimize the demand that this construction would place on the California Department of Forestry and Fire Protection.

Construction of GT-A-1 is expected to require approximately 2,035,000 gallons (approximately 6.25 acre-feet) of water over the 20-month construction period, with a peak use of 40,000 gallons per day during the foundation installation. This water would be transported from SF-B, so it would be derived from the same source, adding to the water demand from either the existing nearby wells that had been used by the Eagle Mountain Mine or an on-site well at the DSSF. Sampling and analysis to assess water sufficiency and quality at each active well would be conducted to ensure that wells would be operated at the appropriate capacity.

Construction wastes would be similar to those described for SF-B, excluding broken PV modules. These wastes would be disposed of in accordance with local, state, and federal regulations and would occur over a 20-month period and be dispersed among the available appropriate landfills, such that the daily waste exported off-site would be a fraction of the maximum daily throughput for any of the landfills administered by the Riverside County Waste Management Department.

Red Bluff Substation A

Although access would be maintained to community facilities and services during construction of Red Bluff Substation A, the increase in the number of vehicles on local roads for construction material deliveries could delay or inhibit access during construction. Anticipated construction timing and duration would be made available to the public to allow residents and visitors to better plan for such delays.

A total workforce of 280 for all of the Red Bluff Substation A components (0.35 percent of the construction employment presented in Table 3.13-4 in Section 3.13), with an average of 25 personnel on-site each day, would be contracted or derived from SCE construction crews; this would generate minimal additional construction employment when compared to the income and employment ROI. Employment of construction personnel would be beneficial to local businesses through increased expenditure of wages for goods and services and the regional economy through increased employment and tax revenues. Construction personnel would purchase food, beverages, and other commodities, which would provide economic benefit to the local economy. These expenditures and benefits could accrue to the local economies surrounding the proposed Project or the local economies of workers' places of residence. However, the influx of the construction workforce would alter the isolated, quiet, and sparsely populated character of the communities surrounding the proposed Project site during the construction period, which would be a temporary impact to the quality of life to residents of Desert Center, Lake Tamarisk Park, and Eagle Mountain.

Because the number of construction workers required represents such a small portion of the regional available labor force, population in-migration would not be expected as a result of construction activities at Red Bluff Substation A, including the proposed telecom system that would provide monitoring and remote operations capabilities of the electrical equipment at Red Bluff Substation A and transmission line. Therefore, no notable adverse impacts would occur to existing population levels or employment distribution within the Project area from Red Bluff Substation A or the telecom system. In addition, since impacts on public services and facilities are usually associated with population in-migration and growth in an area, and no such growth would occur as a result of construction of either of these facilities, a notable increase in the demand for local public facilities and services, such as schools, churches, libraries, hospitals, fire and emergency response, and law enforcement, are not anticipated. Access for emergency services would continue to be maintained throughout the construction period.

Water would be required for dust suppression and potentially for mixing concrete if local suppliers were not available. An estimate of the water requirements would be developed during detailed engineering design and would not exceed the capacity of existing water supply utilities or wells. All waste materials not recycled would be categorized by SCE in order to assure appropriate final disposal. Nonhazardous waste would be transported to local authorized waste management facilities, such that the daily waste exported off-site would be a fraction of the maximum daily throughput for any of the landfills administered by the Riverside County Waste Management Department.

Summary of Construction Impacts

Any impacts on socioeconomics associated with construction of the SF-B, GT-A-1, and Red Bluff Substation A would be temporary, and no impacts that could occur to environmental justice populations would be disproportionate to these populations.

SF-B and the Red Bluff Substation A would be situated entirely on BLM land and, as such, the construction of these facilities would not displace either local or regional businesses or residents, nor would it result in a substantial reduction in the employment or income in the regional and local economy. They would, however, result in short-term increases in regional employment and income if the construction crew hired to work on the Project were not previously employed. It could indirectly generate increased expenditures, income, and employment in the local economies in which the construction workforce spends its earnings and would generate direct expenditures in the regional economy for equipment, supplies (such as ready-mix concrete), and services, which are estimated to generate approximately $15 million over the construction period, including approximately $10 million of sales taxes (which would mainly benefit the state and provide a smaller benefit to the region) and $5 million from assessments for transportation projects. The addition of improvements on this property would increase its value and the associated Riverside County property tax revenue, which are expected to total approximately $12 million over the first 25 years of the proposed Project's lifetime (First Solar 2010).

Although the residential population of Census Tract 458 is identified both in terms of race/ethnicity and income as environmental justice community of concern, it is unlikely that the proposed DSSF would disproportionately adversely affect these residents. The health and safety of all residents and visitors, including children, would be protected by fencing and security cameras and a security booth that would be manned 24 hours per day during both construction and operation. A minimal amount of night lighting also would be provided for security. A fire prevention and protection plan would be in place in accordance with Riverside County regulations, and hazardous materials use and storage on-site would be limited. Appropriate material safety data sheets would be available to the public, and spill containment and cleanup kits would be kept on-site during construction and maintained during the operation of the DSSF. Construction of the Project components would not displace low-income or minority populations, and access to public facilities would be maintained throughout the construction phase.

The proposed Project components would be constructed in accordance with the federal, state, and local plans and policies associated with socioeconomics, public services, and utilities identified in Section 3.13, Socioeconomics and Environmental Justice.

Operation and Maintenance

Solar Farm Layout B

Operation and maintenance of the proposed SF-B would employ between 10 and 15 full-time employees in shifts, which would be a socioeconomic benefit that would not generate population growth in Riverside County beyond the capacity of available housing or public services and facilities.

Operation and maintenance of the proposed SF-B would require a potable water supply. However, the site's small operating workforce would require only a few hundred gallons per day (approximately 0.2 acre-feet per year). This would not create a substantial demand on the public water supply beyond capacity and would not represent a noticeable impact.

Because the small amounts of sanitary wastewater that would be generated by the operations and maintenance workforce would be handled by an on-site septic system and leach field and since the water for this purpose would be drawn from an on-site well, it would not increase the demand on an existing local sanitary waste facility or require additional local government funding for new facilities.

Gen-Tie Line A-1

There would be no new operations workforce associated with GT-A-1 beyond those associated with the DSSF and Red Bluff Substation A, and there would be no effects on population, housing, employment, income, or environmental justice populations associated with the operation of the GT-A-1 line. Removal of larger vegetation that could inhibit access to GT-A-1 also would reduce the likelihood of fire, which would minimize the demand potentially placed on the California Department of Forestry and Fire Protection.

Red Bluff Substation A

No additional employment would occur for the operation and maintenance of the Red Bluff Substation A and its associated components, including the telecom site, and there would be no further demand for water, waste, or other utilities and services. Therefore, there would be no further socioeconomic or environmental justice impacts from operation and maintenance of this facility.

Summary of Operation and Maintenance Impacts

Operation and maintenance of the SF-B, GT-A-1, and Red Bluff Substation A would not result in measurable impacts on the socioeconomics of the region or local communities, and most impacts would occur during the construction phase. Likewise, no impacts that could result from operation and maintenance on environmental justice populations would be disproportionate to these populations. Operations would not displace either businesses or residents, nor would it substantially reduce the employment or income in the regional economy.

None of the Project components would result in a barrier between local residents in Desert Center, Eagle Mountain Village, or Lake Tamarisk Park and the local facilities and services used by these residents. Access to Eagle Mountain School would continue to be provided via Eagle Mountain Road and Kaiser Road. Access to Eagle Mountain Baptist Church, Eagle Mountain Church of the Nazarene Parsonage, and the Riverside County Fire Department in the Lake Tamarisk area would continue to be provided via Kaiser Road. Gas stations, food, and lodging in Desert Center and along Desert Center Rice Road would continue to be accessible to residents in Eagle Mountain Village, the Lake Tamarisk area, Desert Center, and other surrounding communities. These communities would be gaining an additional facility once the visitor center is completed.

SF-B and GT-A-1 would be visible to residents and travelers along Kaiser Road, including at Lake Tamarisk Park and Eagle Mountain Village, from cultivated land to the north of Desert Center Rice Road and to drivers along Kaiser Road, Desert Center Rice Road and I-10. For most of its length, the GT-A-1 line would follow existing roads, which would minimize its impact on these views. Any potential alteration of views could affect the level of visual satisfaction that these residents and visitors experience in this area, but it would be unlikely to result in lifestyle changes unless reactions were to cause residents and visitors to leave the area. In addition, other development at this site consistent with BLM management of the area could have a similar effect.

Decommissioning

Solar Farm Layout B

Socioeconomic impacts that would result from decommissioning SF-B are similar to those described for construction. Decommissioning SF-B would likely require a similar number of workers during a similar timeframe to properly shut down and dismantle the SF-B. However, decommissioning and reclamation would be subject to a site-specific review when the facility reaches the end of its useful life.

Gen-Tie Line A-1

Impacts resulting from decommissioning GT-A-1 are similar to those described under the Alternative 1 construction phase.

Red Bluff Substation A

Impacts resulting from decommissioning Red Bluff Substation A are similar to those described under the Alternative 1 construction phase.

Summary of Decommissioning Impacts

The decommissioning of the Project components contained in Alternative 1 would result in short-term impacts on the regional economy in Riverside County through an increase in employment required to decommission the DSSF once the facility reaches the end of its useful life. Once completely removed, potential long-term impacts include a reduction of property tax revenue because the land would no longer be developed and improved, thereby eliminating the requisite property tax. After closure, measures would be taken to stabilize disturbed areas once equipment and structures were decommissioned and removed from the Project locations. These measures would be outlined fully in the Decommissioning Plan, which would be created to ensure that decommissioning was conducted in accordance with then-current land use plans, policies, or regulations.

Summary of Combined Impacts for Alternative 1

Impacts on socioeconomics would result from the effects of workers within the greater Riverside County region and construction dollars spent in the adjacent communities. Short-term impacts would primarily occur during the construction phase of the proposed DSSF and would therefore be temporary, ceasing once DSSF operations commence. Employment of construction personnel would be beneficial to local businesses in adjacent communities, such as Desert Center, including the local grocery store, gas station, and local eateries, through increased expenditure of wages for goods and services. However, due to the limited number and location of these businesses, the communities of Desert Center, Lake Tamarisk Park, and Eagle Mountain could experience potential quality of life or social impacts due to the increased presence of Project construction workers and traffic without gaining much benefit to their local economy. Employment of construction personnel would also be beneficial to the regional economy through additional employment of residents within Riverside County.

The proposed Project under Alternative 1 would not cause existing housing or persons to be displaced, necessitating 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. The existing infrastructure in Riverside County and the local communities, such as Blythe and Indio, would be able to absorb any additional employees that choose to stay closer to the Project area rather than commute from other areas within Riverside County.

This alternative would not disproportionately affect minority or low-income populations and would not result in adverse health or safety impacts that would disproportionately affect children.

Applicant Measures and Mitigation Measures

The following applicant measures would be implemented to ameliorate the potential effects on residents and businesses of increased traffic during construction.

AM-SOCIO-1: The public shall be notified of Project activities and scheduling to inform the public of projected impacts on the surrounding area. This notification shall provide the public with the opportunity to plan their personal and business activities appropriately.

AM-SOCIO-2: Sunlight shall align Gen-Tie lines along existing linear features (such as Kaiser Road) to minimize the social effects of potential visual impacts.

CEQA Significance Determination

Solar Farm Layout B

SE-1—The SF-B would not displace substantial numbers of people or existing housing on a permanent basis, necessitating the construction of replacement housing outside the local region because no residences would be located within the area of disturbance for the Project. The Project would have no impact under this criterion.

SE-2—The SF-B would not induce short-term or long-term population growth to an extent that could not be accommodated by local housing, local services, and infrastructure, because at its peak, the proposed Project would employ 630 workers, all of whom would already reside in Riverside County. Additionally, the abundance of lodging in Riverside County, including the cities of Blythe and Indio, would be adequate for workers that choose to stay closer to the proposed Project area. For the same reason, the SF-B would not generate solid waste or wastewater that exceeds the capacity of existing facilities, nor would it require the construction of public service facilities or the expansion of facilities to accommodate an increased need for fire protection, police protection, schools, or other public services. The Project would have no impact under this criterion.

SE-3—The SF-B would not cause a substantial long-term reduction in revenue for local businesses, government agencies, or Indian tribes because the SF-B is entirely on BLM land and would not be competing with any of these entities for business. However, it could generate additional tax revenue by improving the property. The Project would have no impact under this criterion.

SE-4—The SF-B would not result in a substantial reduction in the employment and incomes of local residents because all workers required for the Project, including construction, maintenance, and operations personnel, would be hired from within Riverside County, thereby adding to the employment and income of regional and local residents. The Project would have no impact under this criterion.

SE-5—The SF-B could potentially impact lifestyles of people using or residing near the proposed Project from visual disturbance, increased traffic volumes, and the presence of construction crews and equipment. These impacts would be minimized by the implementation of the applicant measures AM-SOCIO-1 and AM-SOCIO-2. The Project would have no impact under this criterion after the applicant measures are implemented.

SE-6—The SF-B would not result in a barrier between local residents and the local services and facilities used by these residents because the Project area is entirely on BLM lands and away from residences and services used by Riverside County and adjacent communities. The Project would have no impact under this criterion.

SE-7—The SF-B would be consistent with anticipated levels of growth and demand for public infrastructure, the development constraints identified in the Desert Center Area Plan, and California goals for increasing renewable energy as a percentage of the energy supply. It also would not result in a permanent increase in population that would require increases in public infrastructure. Therefore, the SF-B would not conflict with applicable land use plans and policies associated with socioeconomics, public services, or utilities. As identified in the Plan of Development (First Solar 2010), recyclable materials would be collected separately and recycled, consistent with the Integrated Waste Management Act of 1989. The Project would have no impact under this criterion.

SE-8—The SF-B would not disrupt utility systems in the towns of Desert Center, Lake Tamarisk Park, and Eagle Mountain Village because utility service would continue uninterrupted throughout construction and operation of SF-B. The Project would have no impact under this criterion.

Gen-Tie Line A-1

Impacts on the thresholds of significance from construction and operation of the GT-A-1 are the same as those described above for the SF-B. Therefore, no mitigation measures are identified to reduce the impacts below the level of significance.

Red Bluff Substation A

Impacts on the thresholds of significance from construction and operation of the Red Bluff Substation A are the same as those described above for the SF-B. Therefore, no mitigation measures are identified to reduce the impacts below the level of significance.

Unavoidable Adverse Effects

There are no unavoidable or significant impacts under Alternative 1 because any impacts that would occur during the construction phase would be temporary. It is expected that although construction would require additional human activity in the Project area, all hired workers would originate from within Riverside County and would therefore not place any undue strain on pubic infrastructure and services offered by adjacent communities beyond currently capacity. It would also not require the construction of additional housing because most workers would either commute to the Project or would stay in lodging facilities near the Project area, such as in the towns of Blythe and Indio. It would also not result in disproportionately high and adverse environmental or human health impacts on an identified minority or low-income population because the areas next to the Project area do not have a greater proportion of minority or low-income residents than the surrounding region.

4.13.4 Alternative 2 – Alternate Action

Construction

Solar Farm Layout B

The impacts resulting from constructing SF-B are the same as those discussed under Alternative 1.

Gen-Tie Line B-2

The socioeconomic and environmental justice impacts of GT-B-2 are similar to those described under GT-A-1 since the same workforce and construction and operation activities would occur at this site as would occur at GT-A-1. The exceptions to this are that less water would be required during construction and that the views of this line and access delays would be unlikely to affect travelers along Desert Center Rice Road and more likely to affect those on the southern portion of Eagle Mountain Road. The lower water requirement would not affect locally provided water utilities since it would be derived from wells used by the DSSF site. Quality of life effects associated with views of the power line and concerns about its location near population centers would be minimized by its location along existing linear features (roads).

During construction, public facilities and services access delays could still occur along Kaiser Road for residents of Lake Tamarisk Park and to those traveling along Eagle Mountain Road to I-10; however, such delays would not occur in the area along Desert Center Rice Road. The same number of vehicles would be expected for GT-B-2 as for GT-A-1. Information concerning construction timing and duration would be made available to the public to allow residents and visitors to better plan for such delays.

Red Bluff Substation B

The socioeconomic and environmental justice impacts of Red Bluff Substation B are the same as those described under Alternative 1. The same number of workers and the same construction activities would occur at the proposed site for Substation B as would occur at the proposed site for Substation A.

Red Bluff Substation B would be situated on a parcel of private land that SCE would acquire and would not displace either businesses or residents, nor would it result in a substantial reduction in the employment or income in the local economy. The addition of improvements on this property would increase its value and the associated regional property tax revenue.

The proposed Red Bluff Substation B would be constructed in accordance with the federal, state, and local plans and policies associated with socioeconomics, public services, and utilities identified in Section 3.13, Socioeconomics and Environmental Justice. Use of this site would be consistent with the current General Plan designation of Open Space – Rural. This is because educational, religious, and utility uses that would be established to serve the surrounding community are directed by General Plan land use compatibility policies to areas with Community Development, Rural Community, or Rural foundation designations. These include the Rural Village Overlay, as well as the Open Space – Rural and Agriculture designations, as long as the facility would be compatible in scale and design with surrounding land uses, would not generate excessive noise, traffic, light, fumes, or odors that might have a negative impact on adjacent neighborhoods, and would not jeopardize public health and safety (Riverside County 2003).

Summary of Construction Impacts

Construction impacts under Alternative 2 are the same as those described under Alternative 1, except that less water would be used during the construction phase.

Operation and Maintenance

Solar Farm Layout B

The impacts resulting from operating and maintaining SF-B are the same as those discussed under Alternative 1.

Gen-Tie Line B-2

The impacts resulting from operating and maintaining the GT-B-2 are similar to those discussed under Alternative 1.

Red Bluff Substation B

The impacts resulting from operating and maintaining the Red Bluff Substation B are similar to those discussed under Alternative 1.

Summary of Operation and Maintenance Impacts

Operation and maintenance impacts under Alternative 2 are similar to those described under Alternative 1.

Decommissioning

Solar Farm Layout B

The impacts resulting from decommissioning SF-B are the same as those discussed under Alternative 1.

Gen-Tie Line B-2

The impacts resulting from decommissioning GT-B-2 are similar to those discussed under Alternative 1.

Red Bluff Substation B

The impacts resulting from decommissioning the Red Bluff Substation B are similar to those discussed under Alternative 1.

Summary of Decommissioning Impacts

The impacts resulting from decommissioning all the Project components of the proposed DSSF are similar to those discussed under Alternative 1.

Summary of Combined Impacts for Alternative 2

The overall socioeconomic impacts of Alternative 2 are essentially the same as those described under Alternative 1. Although the physical effects of Alternative 2 would occur at slightly different locations, they would not have any notably different socioeconomic impacts.

Applicant Measures and Mitigation Measures

The applicant measures that would be implemented under Alternative 2 are the same as those discussed under Alternative 1.

CEQA Significance Determination

Solar Farm Layout B

The CEQA significance determination for SF-B is the same as that discussed under Alternative 1.

Gen-Tie Line B-2

The CEQA significance determination for the GT-B-2 is the same as that discussed under Alternative 1.

Red Bluff Substation B

The CEQA significance determination for the Red Bluff Substation B is the same as that discussed under Alternative 1.

Unavoidable Adverse Effects

Unavoidable adverse effects are the same as those described under Alternative 1.

4.13.5 Alternative 3 – Reduced Footprint Alternative

Construction

Solar Farm Layout C

The impacts resulting from constructing SF-C are similar to those discussed under Alternative 1, except that the SF-C would be smaller and would generate slightly less power at 413 megawatts. As such, impacts would be reduced proportionally due to the reduced Project size, requiring a smaller workforce to construct SF-C and reduced economic revenue for the region and adjacent communities.

Gen-Tie Line A-2

The socioeconomic and environmental justice impacts of GT-A-2 are similar to those described for GT-A-1 since the same workforce and construction activities would occur at this site as would occur at GT-A-1. The exceptions to this are that more water would be required during construction and that this line would cross apparently cultivated land and other property. However, it would follow the existing SCE 161 kV transmission line ROW across these areas, which would minimize quality of life effects associated with views of the power line and concerns about its location near population centers. Construction on or near these cultivated areas could temporarily disrupt these activities in portions of these areas, which could result in a temporary reduction in economic activity that would be derived from these cultivated areas. The area within GT-A-2 would be permanently excluded from cultivation, thus permanently disrupting the economic activity in those areas of GT-A-2 that are currently under cultivation. Preventive measures would be undertaken to protect these properties from wind and water transport of soil through appropriate erosion control. The greater water requirement would not affect locally provided water utilities since it would be derived from wells used by the SF-C.

Public facilities and services access delays could still occur along Desert Center Rice Road in the vicinity of the Desert Flatts gas station, McGoo's Mini Mart, and Farming Biodiesel. The same number and type of vehicles and equipment are expected for GT-A-2 as for GT-A-1. Information concerning construction timing and duration would be made available to the public to allow residents and visitors to better plan for access delays.

Red Bluff Substation A

The impacts resulting from constructing Red Bluff Substation A are the same as those discussed under Alternative 1, with the following exception: Construction of Access Road 2 would employ crews from the region, which could benefit the regional economy if it would reduce construction unemployment in Riverside County. Employment of construction personnel would be beneficial to local businesses adjacent to the Project Area, such as Desert Center, Lake Tamarisk Park, and Eagle Mountain Village and the regional Riverside County economy through increased expenditure of wages for goods and services.

Because the number of construction workers required is expected to be a small portion of the regional available labor force, minimal population in-migration would likely occur as a result of construction for Access Road 2. Therefore, any impacts on existing population levels, employment distribution, or the demand for public facilities and services in Riverside County from the construction of Access Road 2 would be minimal.

Although Access Road 2 would not present a barrier to local facilities and services, the increase in the number of vehicles on local roads for construction material deliveries could delay or inhibit access. Information concerning construction timing and duration would be made available to the public to allow residents and visitors to better plan for such delays.

Water and waste disposal would be required for construction of Access Road 2; however, as described above and in Section 3.13, Socioeconomics and Environmental Justice, the surrounding area has adequate water supply and waste disposal facilities to accommodate these requirements.

Summary of Construction Impacts

The socioeconomic impacts of construction under Alternative 3 are similar to those described under Alternative 1, except it would result in slightly less employment impacts and tax revenue due to the reduced footprint and smaller workforce required for construction.

No socioeconomic impacts associated with Access Road 2 would occur, and no impacts that could occur to environmental justice populations would be disproportionate to these populations because Access Road 2 would upgrade an existing road extending from Chuckwalla interchange with I-10 at Corn Springs Road, would extend eastward to Red Bluff Substation A, and would follow along the Devers Palo Verde Transmission Line. Additionally, the Access Road 2 would also not displace either businesses or residents, nor would it result in a substantial reduction in the employment or income in the regional economy. It could result in short-term increases in regional employment and income if the construction crew hired within Riverside County were not currently employed. It could indirectly generate increased expenditures, income, and employment in the local economy through local expenditures on equipment, supplies, and services.

Because it would occupy an existing roadway and follow an existing transmission line, Access Road 2 would not create a barrier between local residents and local facilities and services or generate views that could reduce the value of the area to local residents and visitors.

Construction of the proposed Access Road 2 would be conducted in accordance with the federal, state, and local plans and policies associated with socioeconomics, public services, and utilities identified in Section 3.13, Socioeconomics and Environmental Justice.

Operation and Maintenance

Solar Farm Layout C

The impacts resulting from operating and maintaining SB-C are similar to those discussed under Alternative 1.

Gen-Tie Line A-2

The impacts resulting from operating and maintaining GT-A-2 are similar to those discussed under Alternative 1.

Red Bluff Substation A

The impacts resulting from operating and maintaining Red Bluff Substation A are the same as those discussed under Alternative 1.

There would be no new operations workforce associated with Access Road 2, and there would be no effects on population, housing, employment, income, or environmental justice populations associated with the operation of this facility.

Summary of Operation and Maintenance Impacts

Operation and maintenance impacts under Alternative 3 are similar to those described under Alternative 1.

Decommissioning

Solar Farm Layout C

The impacts resulting from decommissioning SF-C are similar to those discussed under Alternative 1.

Gen-Tie Line A-2

The impacts resulting from decommissioning GT-A-2 are similar to those discussed under Alternative 1.

Red Bluff Substation A

The impacts resulting from decommissioning Red Bluff Substation A are the same as those discussed under Alternative 1.

Summary of Decommissioning Impacts

The impacts resulting from decommissioning all the Project components under Alternative 3 are similar to those as identified in Alternative 1.

Summary of Combined Impacts for Alternative 3

Combined socioeconomic impacts of the SF-C, GT-A-2, and Red Bluff Substation A are similar to those described under Alternative 1, except Alternative 3 would result in slightly fewer impacts on regional employment and income due to the reduced size of the SF-C and subsequent smaller workforce required for construction. The addition of the Access Road 2 under Alternative 3 would not have a measurable socioeconomic impact on the region or adjacent communities because it is upgrading an existing roadway.

Applicant Measures and Mitigation Measures

The applicant measures that would be implemented under Alternative 3 are the same as those described under Alternative 1.

CEQA Significance Determination

Solar Farm Layout C

The CEQA significance determination for SF-C is the same as that discussed under Alternative 1.

Gen-Tie Line A-2

The CEQA significance determination for GT-A-2 is the same as that discussed under Alternative 1.

Red Bluff Substation A

The CEQA significance determination for Red Bluff Substation A and Access Road 2 is the same as that discussed under Alternative 1.

Unavoidable Adverse Effects

Unavoidable adverse effects are the same as those described under Alternative 1.

4.13.6 Alternative 4—No Issuance of a Right-of-Way Grant and No Land Use Plan Amendment (No Action)

Under this alternative, the proposed DSSF would not be approved by the BLM and the agency would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the Project Study Area, and no installation of power generation and transmission equipment (including the GT-A-1 and Red Bluff Substation) would be constructed. The 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. As a result, the socioeconomic impacts of the proposed Project and the public benefits that could accrue as a result of the proposed Project would not occur as a result of development of the proposed site at this time but could occur in the future if the site were developed for other uses. These impacts include construction and operation employment and income, expenditures, income, and employment associated with increased employment and equipment expenditures in the regional economy, increases in sales and use tax revenues to local governments, and improvements to public infrastructure (electric utility capacity).

The benefits of the proposed Project in reducing greenhouse gas emissions from gas-fired generation also would not occur. In addition, there would be no increases in use of public facilities and infrastructure and the development of infrastructure adjacent to residences and public facilities. However, the land for the proposed Project would become available to other uses that are consistent with the BLM's land use plan, including another solar project requiring a land use plan amendment. In addition, in the absence of this Project, other renewable energy projects may be constructed to meet state and federal mandates, and those projects would have similar impacts on this or other sites.

4.13.7 Alternative 5—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Unsuitable for Solar Energy Development (No Action with Plan Amendment)

Under this alternative, the BLM would not approve the proposed DSSF Project and would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, no solar energy project would be constructed on the Project Study Area, and no power generation and transmission equipment (including the GT-A-1 and Red Bluff Substation) would be installed. The 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 the CDCA Plan would be amended to make the area unavailable for future solar energy development, it is expected that the Project Study Area, including the Red Bluff Substation area and Gen-Tie Line, would continue to remain in its existing condition, with no structures or facilities constructed or operated on the Project Study Area. As a result, the socioeconomic impacts of the proposed Project and the public benefits that could accrue as a result of the proposed Project would not occur. These impacts include construction and operation employment and income, the expenditures, income, and employment associated with increased employment and equipment expenditures in the regional economy, increases in sales and use tax revenues to local governments, and improvements to public infrastructure (electric utility capacity). In addition, there would be no increases in use of public facilities and infrastructure and the development of infrastructure adjacent to residences and public facilities. However, in the absence of this Project, other renewable energy projects may be constructed to meet state and federal mandates, and those projects would have similar impacts on this or other sites.

4.13.8 Alternative 6—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Suitable for Solar Development (No Action with Plan Amendment)

Under this alternative, the BLM would not approve this proposed DSSF Project and would amend the CDCA Plan to allow for other solar projects on the site. As a result, it is possible that another solar energy project could be constructed on the Project Study Area.

As a result, the socioeconomic impacts of the proposed Project and the public benefits that could accrue as a result of the proposed Project could still occur. These impacts include construction and operation employment and income, the expenditures, income, and employment associated with increased employment and equipment expenditures in the regional economy, increases in sales and use tax revenues to local governments, and improvements to public infrastructure (electric utility capacity). However, the impacts would not occur as a result of development of the proposed site at this time. In addition, the increases in use of public facilities and infrastructure and the development of infrastructure adjacent to residences and public facilities would not occur at this time but would likely occur as the result of another project (potentially another solar project) at this location. However, any potential socioeconomic benefit to the region and local communities would not occur as a result of Sunlight's proposal.

4.13.9 Cumulative Impacts

As discussed above in Section 4.13.3, the proposed Project and alternatives would not cause existing housing or persons to be displaced, necessitating 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 impacts and are not discussed further. A cumulative impact would result if impacts from the Project alternatives, when combined with other past, present, and future projects, would exceed the significance criteria presented in Section 4.13.2.

Geographic Extent

The geographic scope for the analysis of impacts 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. Table 3.18-2 and Table 3.18-3 provide lists of projects within the geographic extent for the socioeconomics cumulative scenario.

The criteria by which socioeconomic, public services, and utilities impacts would be cumulatively considered significant are the same as those identified above in Section 4.13.2, CEQA Significance Criteria.

No Action Alternatives

Under the No Action Alternatives, no solar energy project would be constructed to contribute to cumulative employment of construction personnel, and population and economic growth would likely continue as anticipated in the Riverside County General Plan and the Desert Center Area Plan, and as indicated by population projections in Table 3.13-2, Population Projections. The No Action Alternatives also would not contribute to any pressure to expand public facilities and services, as a result of growth, and would not place additional stress on water supply and waste disposal facilities during construction. However, the opportunity for another project to occupy this area under Alternatives 4 and 6 would allow for these contributions to cumulative economic activity, growth, and pressure on public facilities and services in the future.

Action Alternatives

Existing Cumulative Conditions

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, have expanded the demand for housing, and have increased the available workforce. Additional development in turn increases pressure on existing public services and utility systems. Continued development thus provides additional infrastructure to increase capacity and change employment opportunities. Section 3.13, Socioeconomics and Environmental Justice, describes existing socioeconomic, public services, and utilities conditions within the affected counties and cities. Cumulative impacts of the development of the Project alternatives, in conjunction with the projects described in Table 3.18-1 through Table 3.18-3, and the overall continued development of the region would continue to result in the potential for increased job opportunities, increased housing, public services and utilities demands, and land use development impacts, including redevelopment, expansion of facilities, and displacement.

Under Alternative 3, the restriction in cultivation or damage to cultivated crops that could occur as a result of GT-A-2 could decrease revenues for the agricultural landowners whose crops would be affected by construction of this facility and any acreage lost to the required ROW. Long-term impacts on these cultivated areas would be minimized by locating GT-A-2 within the existing SCE 161 kV transmission line ROW across these areas. The addition of other projects that would affect the agricultural resources of the same landowners also affected by the proposed route or to overall agricultural resources in the cumulative impact area could create a cumulative farming revenue impact on these landowners. However, this would not represent a notable reduction in farmland in the cumulative impact area (Riverside County). Many of the other cumulative projects listed in Table 3.18-2 and Table 3.18-3 could contribute to a loss of farmland and agricultural resources, to which GT-A-2 would contribute no loss or a minimal loss. However, based on the locations of these projects, it is unlikely any of them would impact the same farmland as GT-A-2.

Future Foreseeable Projects

Foreseeable Projects in the Project Study Area

Construction and operation of any of the action alternatives 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 3.18-3. Employment of construction personnel for both any action alternative and any or all of the cumulative projects listed in Table 3.18-3 would be beneficial to local businesses and the regional and local economy through increased expenditure of wages for goods and services. In addition, the action alternatives 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 regional and local economy, stimulating economic growth.

Sunlight has indicated that personnel for construction of the cumulative projects listed in Table 3.18-3 would be drawn from local populations in Riverside County, creating new temporary and permanent employment and economic benefit to the regional economy. Although the action alternatives alone would not be likely to generate population in-migration because of the large available labor pool in Riverside County, the demand for construction employment generated by the action alternatives in combination with extensive proposed solar development in the region would increase the demand for skilled labor, which could be beyond the capacity of the region to accommodate. This demand could result in in-migration that could change the character of the regional labor force.

The resulting population growth would require additional housing and could necessitate expansion of public services and facilities if the construction period of these projects were to overlap. In particular, the capacity of water and waste disposal facilities could be strained, emphasizing the need for conservation and recycling. A portion of the cumulative influx of construction labor would increase pressure on the available temporary lodging, which is described in greater detail in Section 3.13-2, Existing Conditions, Population and Housing. Although availability and pricing may vary, the overall supply of 22,508 hotel/motel rooms would be likely to provide a substantial proportion the likely temporary workforce. In addition, lodging availability would increase if the construction workforce would be willing to commute a greater distance. Additional workers could be accommodated in vacant housing, which totaled 6,283 units in Blythe, Coachella, and Indio alone and 102,507 units in Riverside County as a whole.

Socioeconomic impacts 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 any of the action alternatives would be minimized by the aligning Gen-Tie Lines along existing linear features (such as Kaiser Road) and 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 impact on traffic volumes given the existing high volumes of car and truck traffic on I-10, even with partially overlapping construction periods for several projects. The cumulative effects of the action alternatives in combination with reasonably foreseeable projects on each of these resource areas are analyzed in this chapter in Sections 4.10, Noise, 4.16, Visual Resources, 4.15, Traffic, Transportation, and Public Access, 4.9, Lands and Realty, and 4.11, Public Health and Safety/Hazardous Materials. As discussed in these sections, the cumulative contribution of Alternative 4 to any short-term visual, traffic, land use, noise, emissions, or safety impacts for these issue areas would be mitigated. Any associated contribution to a short-term loss of local business revenue impacts would not be cumulatively significant, and any contribution of the action alternatives to a perceived loss in quality of life due to the location of action Alternative facilities along with the listed cumulative projects would be minimal.

All of the action alternatives would require water for dust control and concrete production during construction and would generate construction waste largely in the form of soil from earthwork, grading and excavations, and the removal of structures. As a result, related projects in conjunction with construction of the action alternatives would place demands on local water or solid waste services during similar construction activities. These impacts would be minimal for each action alternative, ensuring that none of the action alternatives would cumulatively contribute to an impact with the addition of other reasonably foreseeable projects.

The Project vicinity and geographic region is experiencing and will continue to experience increasing demands for public services and utilities as a result of continued growth. Agencies with development approval authority review individual project consistency with existing local and regional plans and programs. California laws require specific plans, projects, and planning and development programs to be consistent with local general plans. Therefore, when development proposals are consistent with local general plans, and those, in turn, are consistent with county and regional plans, the goals and policies of county and regional plans are implemented through the local actions on development proposals. As a consequence, if reasonably foreseeable development projects in the cumulative area of impact are consistent with the applicable local government plan and policy documents, then the impacts of those projects have already been anticipated and accounted for and are, therefore, consistent with the plans and policies listed in Table 3.18-3.

As a part of these plans, local planning agencies augment or develop water, wastewater, and solid waste facilities to meet the anticipated needs of population projected for the region. The water, wastewater, and solid waste needs related to any action alternative are expected to be within the parameters of regional capacities, projections, and plans applicable to the geographic extent of the cumulative impact area. Therefore, the current cumulative impact of all development projects within the cumulative area of impact on water and solid waste facilities serving the areas would be reduced with the implementation of mitigation and because the impacts of growth would have already been anticipated and accommodated in approved plans.

The potential for construction activities for the action alternatives to increase potential fire hazards would be minimized by the fire prevention plan that would be in place during construction and would ensure adequate access in case of emergencies. Also, it would protect against the possibility of fires generated by construction and therefore would not noticeably contribute to cumulative fire hazards.

Because none of the action alternatives would preclude emergency access, the addition of future projects would not cumulatively contribute to emergency response times.

There would be no permanent or temporary displacement of low-income or minority businesses or residents under any of the action alternatives to contribute to potential cumulative effects on minority populations. The health and safety of these populations would be protected during both construction and operation at the same levels as other populations by implementing the safety measures described in the Revised Project Description provided by Sunlight. It is assumed that future projects would be required to mitigate impacts on these populations; therefore, cumulative impacts on minority and low-income populations as a result any action alternative in combination with cumulative projects also would be minimal.

Construction and operation of Alternative 1 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 3.18-3. Employment of construction personnel for both Alternative 4 and any or all of the cumulative projects listed in Table 3.18-3 would be beneficial to local businesses in Desert Center, Lake Tamarisk Park, and Eagle Mountain, and the regional economy through increased expenditure of wages for goods and services. In addition, Alternative 1 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.

Foreseeable Renewable Projects in the California Desert

Construction and operation of the action alternatives would have similar incremental impacts in combination with the projects listed in Table 3.18-1 and Table 3.18-2. However, the demand for labor for construction of these projects could result in a reduction in the workforce available in Riverside County for any of the action alternatives, which could derive some of the construction employment for an action alternative from outside Riverside County. Given the relatively small size of the labor force required for each of the action alternatives, it would be unlikely that the incremental increased demand for labor would result in in-migration into Riverside County or additional pressure on the planned future capacity of public utilities and services. Therefore, the effects of the action alternatives on increases in employment and demands on public services and facilities would be minimal.

Overall Conclusion

The incremental effects of construction and operation of any of the action alternatives would not have a cumulatively considerable impact on socioeconomic and environmental justice resources when combined with the past, existing, and future projects identified in Table 3.18-1 through Table 3.18-3.

4.14 SPECIAL DESIGNATIONS

4.14.1 Methodology for Analysis

This section discusses the special designation impacts that would occur with implementation of the Proposed Action or alternatives. Indirect effects may occur during construction from noise, fugitive dust, and lighting that could affect users in designated ACECs and/or Wilderness Areas. Other indirect effects include visual impacts on users in designated Wilderness Areas. Visual impacts are discussed in further detail in Section 4.16. Direct effects could occur if activities would disturb resources for which a special designations area was designated. No CEQA significance criteria are defined for special designations.

4.14.2 CEQA Significance Criteria

There are no CEQA significance criteria defined for special designations.

4.14.3 Alternative 1 – Proposed Action

Construction

Solar Farm Layout B

SF-B is within two miles of the Joshua Tree Wilderness Area administered by the National Park Service. Fugitive dust from construction would create a temporary visual distraction for users of this wilderness.

Gen-Tie Line A-1

No impacts on special designation areas are expected from constructing GT-A-1.

Red Bluff Substation A

There is the potential for indirect impacts on the Chuckwalla Mountains Wilderness associated with construction of Substation A and the associated Desert Center 12kV distribution line. In particular, noise and nighttime lighting could affect the wilderness experience within that area, making human presence more noticeable. Fugitive dust from construction would create a temporary visual distraction for users of this wilderness.

Substation A would be adjacent to the Alligator Rock ACEC, which was established to protect archaeological resources. These resources would not be impacted due to construction of the Substation because they would not be disturbed by human presence, noise, and dust. There would be no impacts on the Alligator Rock ACEC from construction of Red Bluff Substation A. The access road for Red Bluff Substation A would be to the east from Corn Springs Road. As a result, there would be no impacts during construction on the Alligator Rock ACEC.

Summary of Construction Impacts

Alternative 1 would cause temporary indirect impacts on both the Joshua Tree Wilderness Area and Chuckwalla Mountains Wilderness as a result of constructing SF-B and Red Bluff Substation A, respectively. Indirect impacts would be associated with fugitive dust, noise, and nighttime lighting. Constructing Alternative 1 would not cause impacts on the cultural resources within the Alligator Rock ACEC.

Operation and Maintenance

Solar Farm Layout B

Users of this wilderness would experience permanent impacts on their opportunities for solitude. There would also be permanent visual impacts from the strong form, line, and color contrast of the panels and other structures and from sunlight glint and glare reflecting from these structures. While operation and maintenance would not cause any direct impact on the Joshua Tree Wilderness, visitors traversing the southwest areas of the Coxcomb Mountains would experience permanent indirect effects.

Gen-Tie Line A-1

No impacts on special designation areas are expected from operating and maintaining the GT-A-1.

Red Bluff Substation A

During operation and maintenance of the substation, lights would normally be off. Where needed, lights would be shielded, would directed downward, and would be motion sensitive to minimize glare in surrounding areas. As such, operation and maintenance are unlikely to cause direct or indirect impacts on users of the Chuckwalla Mountains Wilderness.

Operating and maintaining Red Bluff Substation A and the access road from Corn Springs Road (Access Road 2) are unlikely to cause direct or indirect impacts that would disturb cultural resources within the Alligator Rock ACEC.

Summary of Operation and Maintenance Impacts

Operation and maintenance of the SF-B would cause permanent indirect impacts on users of the Joshua Tree Wilderness Area.

Decommissioning

Solar Farm Layout B

Decommissioning SF-B would cause temporary, indirect disturbance to users of the Joshua Tree Wilderness Area, similar to those described for constructing SF-B.

After SF-B has been decommissioned, users would experience a beneficial impact, as the permanent visual impacts, described for operation and maintenance of SF-B, would be removed, and the site would return to its natural undeveloped state.

Gen-Tie Line A-1

No impacts on special designation areas are expected from decommissioning of GT-A-1.

Red Bluff Substation A

Decommissioning Red Bluff Substation A would cause temporary indirect disturbance to users of the Chuckwalla Mountains Wilderness, similar to those described for constructing this substation. No impact would occur to the Chuckwalla Mountains Wilderness or the Alligator Rock ACEC.

Summary of Decommissioning Impacts

Decommissioning the project components of Alternative 1 would cause temporary and permanent indirect impacts on users of the Joshua Tree Wilderness Area and Chuckwalla Mountains Wilderness, as described for construction, operation, and maintenance.

Summary of Combined Impacts for Alternative 1

Constructing Kaiser Road would cause permanent direct impacts on cultural resources within the Alligator Rock ACEC.

Construction, operation, maintenance, and decommissioning SF-B would cause temporary and permanent indirect impacts on users of the Joshua Tree Wilderness Area. Constructing and decommissioning Red Bluff Substation A would cause temporary indirect impacts on users of the Chuckwalla Mountains Wilderness.

Applicant Measures and Mitigation Measures

The following Applicant proposed mitigation shall be implemented by SCE on an as-needed basis.

AM-SD-1: During operation and maintenance of Red Bluff Substation A, lights shall normally be off. Where needed during emergency and scheduled work during the night, lights shall be shielded, would be directed downward, and shall be motion sensitive to minimize glare in surrounding areas.

Mitigation measures described in Section 4.6, Cultural Resources, would be implemented to reduce impacts on cultural resources within the Alligator Rock ACEC.

CEQA Significance Determination

Since there are no CEQA significance criteria for special designations, no CEQA significance determination can be made.

Unavoidable Adverse Effects

There would be no unavoidable significant impacts on special designations as a result of Alternative 1.

4.14.4 Alternative 2 – Alternate Action

Construction

Solar Farm Layout B

The impacts resulting from constructing SF-B are the same as those discussed under Alternative 1.

Gen-Tie Line B-2

No impacts on any special designations are expected as a result of constructing GT-B-2.

Red Bluff Substation B

No impacts on any special designations are expected as a result of constructing Substation B.

Summary of Construction Impacts

Constructing Alternative 2 would cause temporary indirect impacts on users of the Joshua Tree Wilderness Area, as described above under Alternative 1.

Operation and Maintenance

Solar Farm Layout B

The impacts resulting from operating and maintaining SF-B are the same as those discussed under Alternative 1.

Gen-Tie Line B-2

No impacts on any special designations are expected as a result of operating and maintaining GT-B-2.

Red Bluff Substation B

During emergency and/or maintenance of Red Bluff Substation B during the night, AM-SD-1 would be implemented to reduce impacts. A less than significant impact would occur.

Summary of Operation and Maintenance Impacts

Constructing Alternative 2 would cause permanent indirect impacts on users of the Joshua Tree Wilderness Area, as described above under Alternative 1.

Decommissioning

Solar Farm Layout B

The impacts resulting from decommissioning SF-B are the same as those discussed under Alternative 1.

Gen-Tie Line B-2

No impacts on any special designations are expected as a result of decommissioning GT-B-2.

Red Bluff Substation B

No impacts on any special designations are expected as a result of decommissioning Substation B.

Summary of Decommissioning Impacts

Decommissioning Alternative 2 would cause temporary and permanent indirect impacts on users of the Joshua Tree Wilderness Area, as described above for Alternative 1.

Summary of Combined Impacts for Alternative 2

All impacts associated with construction, operation, maintenance, and decommissioning SF-B are similar to those described under Alternative 1. Alternative 2 would cause no additional impacts on special designations.

Applicant Measures and Mitigation Measures

The mitigation measure for Alternative 2 is the same as described for Alternative 1.

CEQA Significance Determination

Since there are no CEQA significance criteria for special designations, no CEQA significance determination can be made.

Unavoidable Adverse Effects

There would be no unavoidable significant impacts on special designations as a result of Alternative 2.

4.14.5 Alternative 3 – Reduced Footprint Alternative

Construction

Solar Farm Layout C

Impacts from constructing SF-C are similar to those described for SF-B. Indirect impacts would be slightly reduced due to the smaller footprint of SF-C.

Gen-Tie Line A-2

No impacts on any special designations are expected as a result of constructing GT-A-2.

Red Bluff Substation A

The impacts resulting from constructing Red Bluff Substation A are the same as those discussed under Alternative 1. No impacts on any special designations are expected as a result of constructing the access road from Kaiser Road (Access Road 1).

Summary of Construction Impacts

Temporary indirect impacts on users of the Joshua Tree Wilderness Area and Chuckwalla Mountains Wilderness as a result of constructing SF-C and Red Bluff Substation A, respectively, are similar to those described under Alternative 1. Constructing the access road from Kaiser Road (Access Road 1) would not cause any direct or indirect impacts on special designations.

Operation and Maintenance

Solar Farm Layout C

Impacts from operating and maintaining SF-C are similar to those described for SF-B. Indirect impacts are slightly reduced due to the smaller footprint of SF-C.

Gen-Tie Line A-2

No impacts on any special designations are expected as a result of operating and maintaining GT-A-2.

Red Bluff Substation A

No impacts on any special designations are expected as a result of operating and maintaining Red Bluff Substation A, as described above under Alternative 1. No impacts on any special designations are expected as a result of operating and maintaining the access road from Kaiser Road (Access Road 1).

Summary of Operation and Maintenance Impacts

Operating and maintaining the project components in Alternative 3 would cause permanent indirect impacts on users of the Joshua Tree Wilderness Area, as described above for SF-B under Alternative 1. Impacts would be slightly reduced due to the reduced footprint of SF-C. No additional impacts on special designations are expected from operating and maintaining the project components in Alternative 3.

Decommissioning

Solar Farm Layout C

Impacts from decommissioning SF-C are similar to those described for SF-B. Indirect impacts would be slightly reduced due to the smaller footprint of SF-C.

Gen-Tie Line A-2

No impacts on any special designations are expected as a result of decommissioning GT-A-2.

Red Bluff Substation A

The impacts from decommissioning Red Bluff Substation A are the same as those discussed under Alternative 1. No impacts on any special designations are expected as a result of decommissioning the access road from Kaiser Road (Access Road 1).

Summary of Decommissioning Impacts

Decommissioning SF-C would cause temporary and permanent impacts on users of the Joshua Tree Wilderness Area, similar to those described for SF-B. Due to the smaller footprint of SF-C, impacts would be slightly reduced in comparison to SF-B. Decommissioning Red Bluff Substation would cause temporary impacts on users of the Chuckwalla Mountains Wilderness, as described for SF-B.

Summary of Combined Impacts for Alternative 3

Construction, operation, maintenance, and decommissioning SF-C would cause temporary and permanent indirect impacts on users of the Joshua Tree Wilderness Area. Constructing and decommissioning Red Bluff Substation A would cause temporary indirect impacts on users of the Chuckwalla Mountains Wilderness.

Applicant Measures and Mitigation Measures

The mitigation measure for Alternative 3 is the same as described for Alternative 1.

CEQA Significance Determination

Since there are no CEQA significance criteria for special designations, no CEQA significance determination can be made.

Unavoidable Adverse Effects

There would be no unavoidable significant impacts on special designations as a result of Alternative 3.

4.14.6 Alternative 4—No Issuance of a Right-of-Way Grant and No Land Use Plan Amendment (No Action)

Under this alternative, the BLM would not approve the proposed Desert Sunlight Solar Farm Project and would not amend the CDCA Plan. As a result, no solar energy project would be constructed, and the BLM would continue to manage the Project 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, no new structures or facilities would be constructed or operated on the site and no new ground disturbance would occur. As a result, none of the impacts on special management areas from construction or operation of the project would occur. In particular, no direct or indirect impacts on ACECs, wilderness areas, or other special designations would occur that would affect the resources these special designation areas are meant to protect. However, the land on which the project is proposed would become available to other uses that are consistent with the BLM's land use plan, including another solar project requiring a land use plan amendment. In addition, in the absence of this project, other renewable energy projects could be constructed to meet state and federal mandates, and those projects would have similar impacts in other locations.

4.14.7 Alternative 5—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Unsuitable for Solar Energy Development (No Action with Plan Amendment)

Under this alternative, the BLM would not approve the proposed Desert Sunlight Solar Farm Project and would amend the CDCA Plan to make the proposed site unavailable for future solar energy development. As a result, no solar energy project would be constructed on the Project site, and the 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 the CDCA Plan would be amended to make the area unavailable for future solar energy development, it is expected that the Project site would continue to remain in its existing condition unless another use is designated in this amendment. As a result, the Special Management Areas that overlap with the site are not expected to change noticeably from existing conditions and, as such, this No Action Alternative would have no adverse impact on Special Management Areas within and adjacent to the site in the long term. However, in the absence of this project, other renewable energy projects may be constructed to meet state and federal mandates, and those projects would have similar impacts on other locations and could affect special designation areas.

4.14.8 Alternative 6—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Suitable for Solar Development (No Action with Plan Amendment)

Under this alternative, the BLM would not approve the proposed Desert Sunlight Solar Farm Project and would amend the CDCA Plan to allow for other solar projects on the Project site. As a result, it is possible that another solar energy project could be constructed on the Project site.

Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. As a result, it is likely that impacts on special management areas would result from the construction and operation of the solar technology and resulting ground disturbance and would likely be similar to the impacts on special management areas from the proposed Project, including impacts on desert wildlife or wilderness areas. Different solar technologies require different amounts of grading; however, it is expected that all solar technologies would require grading and maintenance. As such, this No Action Alternative could result in impacts on Special Management Areas similar to the impacts under the proposed Project.

4.14.9 Cumulative Impacts

Geographic Extent

Since the Project would have temporary indirect effects on the Joshua Tree and Chuckwalla Mountains Wilderness Areas, the geographic extent of analysis is the area encompassing the northern boundary of the Joshua Tree Wilderness south to the southern boundary of the Chuckwalla Mountains Wilderness. The eastern and western boundaries would also be determined by the Wilderness Area boundaries. The Alligator Rock ACEC is included in this geographic extent.

Existing Cumulative Conditions

The pristine Joshua Tree and Chuckwalla Wilderness Areas are surrounded by largely undeveloped lands. The Alligator Rock ACEC is also largely undeveloped, though it is nearly adjacent to I-10. DPV1 transmission line has been built through the Alligator Rock ACEC. .

Past, Present and Future Foreseeable Projects

DPV1 transmission line is an existing project that currently passes through the Alligator Rock ACEC. DPV2 transmission line is a proposed future project that will also pass through the Alligator Rock ACEC. Both projects may contribute to cumulative impacts to the ACEC. The temporary indirect impacts from the Proposed Action in conjunction with the future DPV2 project could cause cumulative impacts to the Chuckwalla Wilderness Areas and the Alligator Rock ACEC. No other known projects have been proposed within the Alligator Rock ACEC, Joshua Tree Wilderness, or Chuckwalla Mountains Wilderness.

Depending on their locations, other solar projects near the Joshua Tree Wilderness and Chuckwalla Mountains Wilderness could cause similar impacts compared to the proposed Project, including both temporary and permanent indirect effects on users of these wilderness areas.

Overall Conclusion

Due to the distance from the wilderness areas and lack of other development proposed within the Alligator Rock ACEC, impacts from the proposed Project are unlikely to be cumulatively significant.

4.15 TRANSPORTATION AND PUBLIC ACCESS

4.15.1 Methodology for Analysis

This section discusses the transportation and public access impacts that would occur with implementation of the Proposed Action or alternatives with respect to the impact criteria identified below in Sections 4.15.2 and 4.15.3. Effects may occur from physical changes to roads, construction activities, introduction of construction or operations-related traffic on local roads, or changes in traffic volumes created by either direct or indirect workforce changes in the area. Because the traffic analysis was conducted for all Project components together in order to capture the maximum impacts to traffic and transportation and because the analysis is relevant to all Project components and alternatives, the traffic analysis results are presented separately in Section 4.15.4, with additional detail provided in the complete traffic analysis found in Appendix I. These results are then used for the analysis of each action alternative.

4.15.2 CEQA Significance Criteria

Under CEQA, the proposed Project would have a significant impact on transportation (CEQA does not define significance criteria for public access) if it would:

TA-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;

TA-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; or

TA-3. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks.

For the proposed Project, the following 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 then these significance criteria are not discussed further in this section.

- Substantially increase hazards due to a design feature such as sharp curves or dangerous intersections or incompatible uses

  No road hazards such as insufficient line of sight or sharp curves were observed on the existing roadway system. Reconfiguration of the existing roadway system would not be required under any of the action alternatives; therefore, there would be no adverse effect.

- Result in inadequate emergency access

  There are no features of the existing roadway system that would limit or prevent emergency access. Reconfiguration of the existing roadway system would not be required under any of the action alternatives; therefore, emergency access would remain the same and there would be no adverse effect.

Under all action alternatives new access roads, both temporary and permanent, would be designed and constructed to allow the movement of large vehicles, would provide periodic locations where vehicles can turn around, and would be sufficient to accommodate emergency vehicles such as ambulances and fire trucks; therefore, there would be no adverse effect on emergency access.

- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities

  Public buses along I-10 are the only public transportation known to use the Project area. Project-generated traffic would be a small percentage of the total traffic on I-10; therefore, these public buses would not be adversely affected. There are no future plans to expand public transportation in the Project area, nor are such plans likely due to the area's sparse population. Nevertheless, implementation of any of the action alternatives would not preclude an expansion of public transportation in the Project area.

  There are no bicycle routes in the Project area; therefore, there would be no adverse effects. There are no future plans to designate bicycle routes in the Project area, although implementation of any of the action alternatives would not preclude the future designation of bicycle routes in the Project area.

4.15.3 Quantitative Traffic Analysis

A quantitative traffic analysis was performed by Hernandez Kroone & Associates (HKA) to assist in identifying and evaluating the potential traffic, transportation and public access-related impacts of the proposed Project (HKA 2010). The detailed traffic study is provided in Appendix I. A summary of the traffic analysis methodology is presented here.

Because no traffic would be generated as a result of any of the three No Action Alternatives (Alternatives 1 through 3), the quantitative traffic analysis described in this section is only relevant to the Action Alternatives (Alternatives 4 through 6).

In addition, the traffic study only analyzed projected construction traffic levels because construction traffic. Construction traffic would greatly exceed operation and maintenance traffic and would be similar to traffic during decommissioning. Therefore, an analysis of construction traffic impacts serves as an analysis of the maximum impact level of the Project.

The quantitative traffic analysis analyzed the impacts of the three Project components together in order to capture the maximum impacts to traffic and transportation. Because the construction of the Project components would overlap, analyzing the Project components individually would not accurately reflect the overall impact of the Project. Impacts from the individual components would be less than those of the entire proposed Project. Likewise, impacts from the reduced size of the Solar Farm under Alternative 6 during construction would be less than those of the full size Solar Farm alternatives (Alternatives 4 and 5) because there would be slightly less Project-generated traffic in order to construct the Project. Traffic impacts from Project operations would, however, remain substantially similar under each of the three Solar Farm action alternatives.

The traffic impact analysis can be broken down into four steps. First, the future traffic volume of the area is estimated. This is referred to as "projected future traffic" and provides a yardstick against which to measure the impact of Project-generated traffic. Second, the number of trips that would be generated by the proposed Project is estimated. This is referred to as "Project trip generation." Third, the distribution of these trips on existing roadways is estimated. This is referred to as "Project trip distribution and assignment." Finally, the impact of the proposed Project is determined by calculating the level of service (LOS) of area roadways and intersections when Project-generated trips are added to the projected future traffic volume.

Projected Future Traffic

The projected future traffic volume in the area provides a yardstick against which to measure the impact of Project-generated traffic. Several growth measurements were analyzed to determine which one provided the best method to estimate future traffic in the Project area and it was determined that a two percent annual growth rate was appropriate for use in the traffic analysis to project future traffic volume.

Project Trip Generation

Project trips represent the volume of traffic that would be added to the road system by implementation of the proposed Project. For this analysis, Project trips were estimated through an analysis of the number of trips required to construct, operate, and maintain the proposed Project. Project trips include employees commuting to and from the Project site, construction equipment trips, deliveries of materials, visitor trips, and other miscellaneous trips to the Project site.

The number of Project trips would be similar regardless of which alternative[1] was 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. The PM peak traffic hour occurs during the period from 4:00 PM to 6:00 PM (HKA 2010).

Construction Trips

Construction would occur over a period of 26 months. Chapter 2 provides details on the construction plan related to traffic and transportation including the number of employees, construction equipment trips, material deliveries, and the construction schedule. Because this section focuses on the information used to perform the traffic analysis, much of the information provided in Chapter 2 is not repeated here.

Construction Employee Trips

Table 4.15-1 contains the daily employee trips to the Project site components in passenger car equivalents (PCEs), as well as the trips that would occur during the AM and PM peak traffic hours. A PCE can be thought of as a measure of the impact that a mode of transport has on traffic compared to a regular passenger car. For example, if a regular passenger car is assigned a value of "1," a bus or tractor trailer might be assigned a value of "3" or "4" while a motorcycle might be

[1] Alternatives 1, 2, and 3 are no action alternatives.

assigned a value of "0.5." By assigning PCEs, a quantitative analysis that takes into account all vehicle types can be performed.

By comparing the "Daily Trips" column, which represents total trips in a 24-hour period, with the "AM Peak" and "PM Peak" columns, it is apparent that some Project trips would occur outside of the AM and PM peak traffic hours. For example, the work day would likely end at 3:30 PM; therefore, the majority of employees would leave the Project site prior to the PM peak traffic hour. However, because traffic volume would be greatest during peaks hours, the quantitative traffic analysis only analyzes peak hours.

Table 4.15-1
Project Trips for Construction Employees

Project Component	Daily Trips (one-way trips; PCE)	AM Peak Hour (one-way trips, PCE) In / Out	PM Peak Hour (one-way trips, PCE) In / Out
Solar Farm and Gen-Tie Line	204	88 / 2	- / 10
Red Bluff Substation	108	46 / -	- / 8
Visitors and miscellaneous trips	10	- / -	- / -
Total	**322**	**134 / 2**	**- / 18**

Source: HKA 2010

The methodology by which HKA arrived at the numbers in Table 4.15-1 is detailed in the traffic study, which is in Appendix I. For example, the 204 one-way trips to the Solar Farm and Gen-Tie Line consist of the following:

- Twenty-five round-trips by buses with 20 seats each to shuttle employees to site from nearby cities. Using a PCE of 1.5 for the buses, this equates to 76 one-way trips.
- Sixty round-trips by private vehicles, which equates to 120 one-way trips. Even though buses would be provided, it is assumed that approximately ten percent of employees would continue to drive private vehicles with one or two passengers.
- Eight one-way trips for security guards. Two guards would staff each of two 12-hour shifts.

Construction Equipment Trips

Table 4.15-2 contains an estimate of the daily construction equipment trips that would occur during the AM and PM peak traffic hours only. The majority of the construction equipment and material deliveries would occur outside of peak traffic hours. For example, the oversize flat-bed tractor trailers that would deliver construction equipment to the site are not allowed by regulation to travel on major highways such as I-10 during peak traffic hours. However, smaller trucks such as concrete mixers, would likely travel during the AM peak hour because concrete needs to be poured at cooler temperatures and because these trucks can be unloaded quickly. In order to provide a realistic estimate of the impact of truck trips on traffic and transportation, approximately one-third of the average daily truck trips were assumed to occur during the AM peak traffic hour. A PCE of 3 was used to estimate the impact of these truck trips.

Table 4.15-2
Project Trips for Construction Equipment

Project Component	Daily Trips (one-way trips, PCE)	AM Peak Hour (one-way trips, PCE) In / Out	PM Peak Hour (one-way trips, PCE) In / Out
Construction equipment	18	10 / 8	- / -
Material deliveries	15	8 / 7	- / -
Total	**33**	**18 / 15**	**- / -**

Source: HKA 2010

The methodology by which HKA arrived at the numbers in Table 4.15-2 is detailed in the traffic study (Appendix I). The number of construction equipment trips used in the quantitative traffic analysis (33 one-way peak-hour PCE trips each workday) is considered realistic given the travel conditions and restrictions for these vehicles.

Operation and Maintenance Trips

The trip volume during operation and maintenance of the proposed Project would be much lower than during construction.

Solar Farm

During operation and maintenance of the Solar Farm, each of two 12-hour shifts would be staffed by ten employees (up to a maximum of 15 employees) and two security guards. Seven deliveries would also occur each weekday. The Visitor Center would be open from 10:00 AM to 3:00 PM each weekday and would be staffed by one employee. Therefore, the average daily traffic (over a 24-period) would be 32 round trips, or 64 one-way trips.

Over half of these trips would occur outside of peak traffic hours. For example, employees working the 6:00 AM to 6:00 PM shift would arrive and depart outside of peak traffic hours. In addition, trips to the Visitor Center would not occur during peak traffic hours and some deliveries would likely occur during non-peak hours.

About 14 one-way trips would occur during each of the peak traffic hours. Table 4.15-3 presents the average daily traffic over a 24-hour period and the trips that would occur during peak traffic hours.

Table 4.15-3
Solar Farm Operation and Maintenance Project Trips

Trip Type or Origin/Destination	Daily Trips (one-way trips, PCE)	AM Peak Hour (one-way trips, PCE) In / Out	PM Peak Hour (one-way trips, PCE) In / Out
Solar Farm (two shifts)	40	- / 10	10 / -
Guard Shack (two shifts)	8	- / 2	2 / -
Visitor Center*	2	- / -	- / -
Deliveries	14	1 / 1	1 / 1
Total	**64**	**1 / 13**	**13 / 1**

* One round-trip per day has been assumed for purposes of this analysis.
Source: HKA 2010

Gen-Tie Line

The Gen-Tie Line would be inspected annually and maintenance would be performed on an as-needed basis, regardless of the alternative selected. Traffic associated with these activities could occur at anytime; therefore, these trips have been assumed to occur outside of peak traffic hours.

Red Bluff Substation

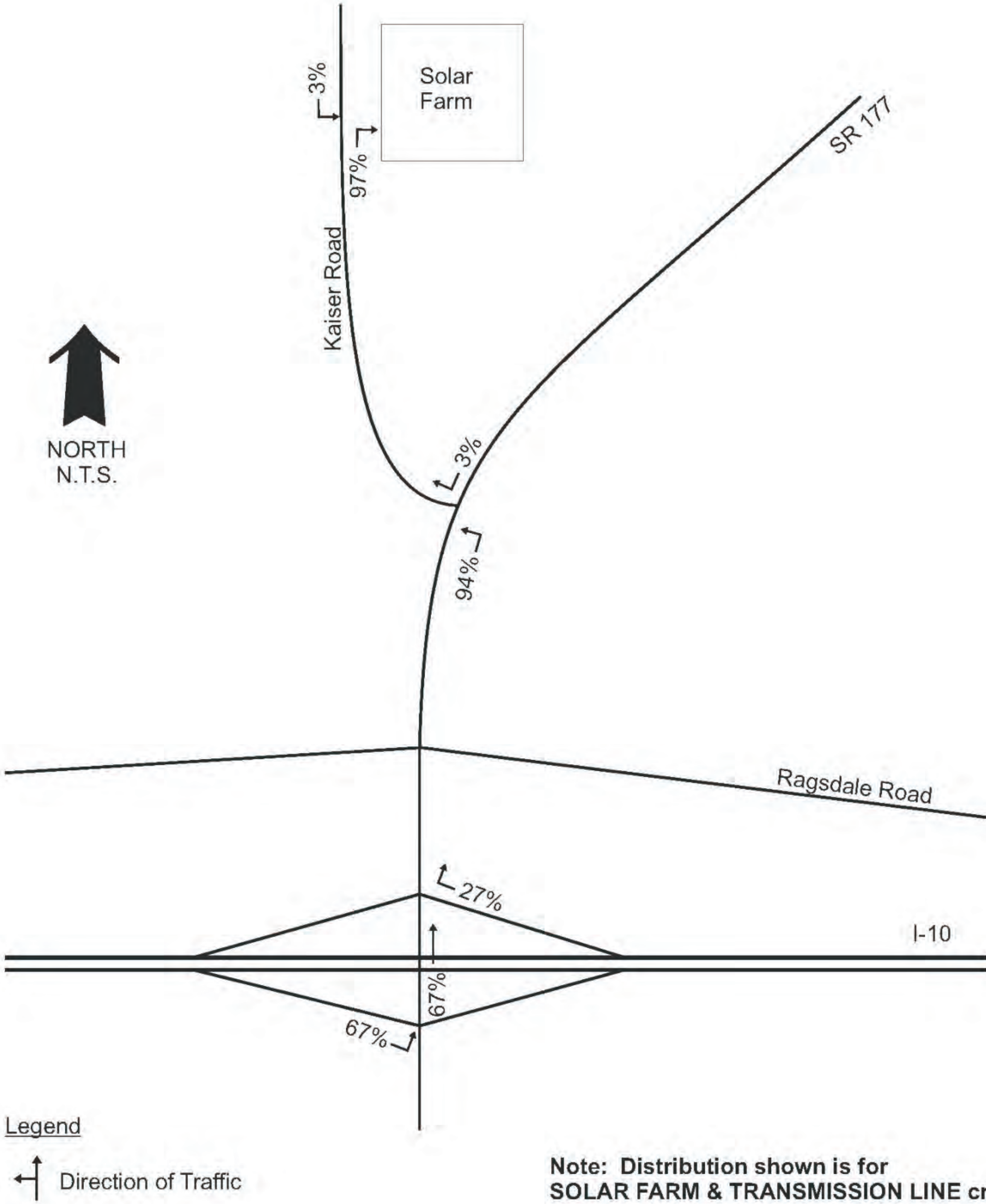
The Red Bluff Substation would be monitored remotely and would have approximately three to four visits a month, regardless of the alternative selected. Traffic associated with these activities could occur at anytime; therefore, these trips have been assumed to occur outside of peak traffic hours.

Project Trip Distribution and Assignment

Project trip distribution and assignment is the process of analyzing the likely origin and destination of Project-generated traffic within the roadway system. The majority of Project trips would access the Project site from I-10, SR 177, and Kaiser Road. Figure 4.15-1 shows the trip distribution and assignment in percentages. A detailed explanation of trip distribution and assignment can be found in the traffic study (Appendix I).

Solar Farm

All traffic would access the Solar Farm construction site via Kaiser Road. Because of the limited development north of the Project site, only three percent of traffic has been assumed to travel southbound on Kaiser Road. The remaining 97 percent has been assumed to travel northbound on Kaiser Road. On I-10, 67 percent of all traffic has been assumed to travel eastbound and 27 percent westbound based on population density in the surrounding communities (HKA 2010).



Note: Distribution shown is for SOLAR FARM & TRANSMISSION LINE crews

Source: Hernandez, Kroone & Associates, Inc. 2010.

DESERT SUNLIGHT SOLAR FARM

Figure 4.15-1

Trip Distribution and Assignment in Percentages

Gen-Tie Line

Employees working on the Gen-Tie Line would travel different routes depending on the section of the line that was under construction at a particular time. All Gen-Tie Line construction traffic was assumed to exit I-10 at the SR 177 interchange and then turn either north or south depending on the current construction location.

Red Bluff Substation

The route used to access the substation site would vary depending on the alternative. For Red Bluff Substation A, Project traffic would use the I-10 and SR 177 interchange and proceed south and east along and Aztec Avenue. There is a also a Red Bluff Substation A sub-alternative, under which traffic would exit I-10 at the Corn Springs exit and proceed to the site via Chuckwalla Valley Road and Corn Springs Road. For Red Bluff Substation B, Project traffic would use the I-10 and Eagle Mountain Road interchange. To represent the highest level of potential traffic impacts in the quantitative traffic analysis, all Red Bluff Substation construction traffic was assumed to exit I-10 at the SR 177 interchange. If alternate interchanges were utilized, there would be less Project traffic and, therefore, less of an impact at the I-10 and SR 177 interchange.

Impacts of the Proposed Project on LOS and Delay at Intersections

HKA analyzed the construction Project trip data discussed in the previous sections using the Highway Capacity Manual 2000 methodology to determine the LOS at the three intersections that would be the most adversely affected by the proposed Project. As shown in Table 4.15-4, the LOS at all three intersections would remain at "A," which is the highest or best performance level.

Table 4.15-4
Project Impact on Delay and Level of Service (LOS) at Intersections

Intersection	Delay without Project (seconds)	LOS without Project	Delay with Project (seconds)	LOS with Project
AM Peak Hour				
SR-177 and I-10 Eastbound	9.0	A	9.6	A
SR-177 and I-10 Westbound	8.6	A	9.3	A
SR-177 and Kaiser Road	8.5	A	8.6	A
PM Peak Hour				
SR-177 and I-10 Eastbound	8.9	A	9.0	A
SR-177 and I-10 Westbound	8.7	A	8.8	A
SR-177 and Kaiser Road	8.6	A	8.7	A

Source: HKA 2010

The LOS is based on a measure of the number of seconds a driver is delayed at an intersection. Table 3.15-4 shows the impact of the proposed Project on driver delay. Although the delay increases slightly at all intersections during Project construction, the LOS remains at "A." The Riverside County General Plan Circulation Element states that all County-maintained roads and conventional state highways shall operate at LOS "C" or better (Riverside County 2003). The Riverside County CMP states that all state highways and principal arterials shall operate at LOS "E" or better (Riverside County 2007). The impact of Project-generated traffic at the impacted intersections would be acceptable by County standards.

The data analyzed in the traffic study is a realistic estimate of the peak Project impacts. Impacts to intersections not included in the study and during other times of day or phases of construction would be less than those calculated by the traffic study analysis.

Increase in Traffic Volume on Roadway Segments

On February 17, 2010, 108 vehicles (one-way trips) were counted on Kaiser Road north of Lake Tamarisk Report during a 24-hour period (HKA 2010). During operation and maintenance, an additional 64 vehicles (one-way trips) would travel this route during a 24-hour period on a typical weekday (HKA 2010). The number of trips added to these roads during construction would be higher, especially during the peak construction period (months 6 through 8). Although the intersection LOS analysis demonstrates that the impacted intersections would continue to operate at an acceptable LOS, local residents and others who are familiar with local roads would likely perceive the increase in traffic as substantial, even during operation and maintenance, because the existing volume of traffic is so low and the Project-generated traffic would seem substantial in comparison.

4.15.4 Alternative 1 – Proposed Action

Construction

Solar Farm Layout B

Performance of the Roadway System

As discussed in Section 4.15.3, the LOS at impacted intersections would remain at LOS A during construction, with only slight increases in delay at those intersections. LOS A is the highest standard of performance for the roadway system. Intersections operating at LOS A are in conformance with Riverside County's LOS performance standards. Impacts would be further reduced with implementation of AM-TRANS-1.

Air Traffic Impacts

SF-B would overlap a low-level military flight path. The Project Proponent 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). SF-B would be sufficiently distant from the Eagle Mountain landing strip and the former Desert Center Airport that no impacts would occur. Construction of SF-B would not substantially increase traffic at regional airports as most trips to the site would take place in cars or trucks.

Road Deterioration

All road surfaces deteriorate with use over time and require maintenance, such as addressing potholes, and periodic resurfacing. Roads also deteriorate due to extreme weather or poor design and construction. Project-generated traffic, especially heavy truck traffic, would accelerate the rate of deterioration of public roads traveled. While 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, impacts on certain locals roads could be more pronounced. Impacts would be reduced with implementation of AM-TRANS-2.

Road Closures and Rerouting

No road closures or rerouting would occur.

Gen-Tie Line A-1

Impacts from construction of GT-A-1 would be the same as those described for SF-B for performance of the roadway system, air traffic, and road deterioration..

Road Closures and Rerouting

Road or lane closures, traffic rerouting, and other traffic controls (such as flaggers) would be required for short durations during construction of GT-A-1 for certain activities such as wire stringing across roads. Industry-standard construction warning signs would be posted along roads and flaggers or other traffic controls would be implemented as necessary to assure the efficient movement of traffic and the safety of travelers and construction workers. Utility crossings would be completed and signed in accordance with the guidelines of the agency that controls the affected roads. Road closures and road rerouting would be managed through the implementation of AM-TRANS-1.

Red Bluff Substation A

Impacts from construction of Red Bluff Substation A would be the same as those described for SF-B for performance of the roadway system and road deterioration. There would be no impact related to road closures or rerouting because no road closures or rerouting would be required.

Air Traffic Impacts

In addition to potentially overlapping low-level military flight paths as described for SF-B, the Desert Center Communications Site (Telecom Site) would be approximately 5,500 feet from the runway of the former Desert Center Airport, which is now a private special-use airport. 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. The Telecom Site, which would contain a 185-foot tall tower, would require FAA notification if the airport were a public airport according to the standards set forth in 14 CFR Section 77; however, because the airport is now privately-owned, notification does not apply. Coordination with the FAA could still be prudent. Coordination with the airport owners (AM-TRANS-3) would occur prior to construction.

Summary of Construction Impacts

The construction of Alternative 1 with SF-B, GT-A-1 and Red Bluff Substation A, would result in the following adverse impacts.

Delay at intersections would increase slightly; however, the LOS of these intersections would remain at “A,” which is the highest standard of performance.

Portions of the Project would overlap low-level military flight paths and coordination with the military would be required. The Telecom Site would be approximately 5,500 feet from the runway of the former Desert Center Airport, and coordination with the airport owners would occur prior to construction.

Project-generated traffic would contribute to deterioration of local roads; however, Sunlight would document road conditions prior to and after construction and contribute fair share cost to required repairs.

Road or lane closures, traffic rerouting, and other traffic controls (such as flaggers) would be required for short durations during construction of GT-A-1 for certain activities such as wire stringing across roads; however, a Construction Traffic Control Plan (AM-TRANS-1) would be developed and would ensure adherence to applicable regulations and implementation of industry-standard traffic controls.

Operation and Maintenance

Solar Farm Layout B

Because there would be less Project-generated traffic on area roads during operation and maintenance of SF-B (as compared to during construction), impacts related to performance of the roadway system (specifically, LOS and intersection delay) and road deterioration would be reduced. There would be no impact to air traffic as any necessary mitigation would have been implemented prior to construction. Impacts to road closures or rerouting would be the same as those described for construction of SF-B.

Gen-Tie Line A-1

Because there would be less Project-generated traffic on area roads during operation and maintenance of SF-B (as compared to during construction), impacts related to performance of the roadway system (specifically, LOS and intersection delay) and road deterioration would be reduced. There would be no impact to air traffic as any necessary mitigation would have been implemented prior to construction. There would be no impacts related to road closures or rerouting as no road closures or rerouting would occur during operation and maintenance.

Red Bluff Substation A

Because there would be less Project-generated traffic on area roads during operation and maintenance of Red Bluff Substation A (as compared to during construction), impacts related to performance of the roadway system (specifically, LOS and intersection delay) and road deterioration would be reduced. There would be no impact to air traffic as any necessary mitigation would have been implemented prior to construction. There would be no impacts related to road closures or rerouting as no road closures or rerouting would occur during operation and maintenance.

Summary of Operation and Maintenance Impacts

The operation and maintenance of Alternative 1 would have the following impacts.

Delay at intersections would decrease substantially compared to construction levels because there would be less Project-generated traffic. The LOS of these intersections would remain at "A," which is the highest standard of performance.

The volume of Project-generated traffic would be too low during operation and maintenance to substantially contribute to deterioration of local roads, reducing this impact.

There would be no impact on low-level military flight paths or the former Desert Center Airport as any necessary mitigation would have been implemented prior to construction.

There would be no impact related to road closures or rerouting because none would occur during operation and maintenance.

Decommissioning

Solar Farm Layout B

Decommissioning impacts would be similar to construction impacts described for SF-B. The portion of Kaiser Steel Road and an unnamed road that would be closed by construction of SF-B could be reopened to travel.

Gen-Tie Line A-1

Decommissioning impacts would be similar to construction impacts described for GT-A-1.

Red Bluff Substation A

Decommissioning impacts would be similar to construction impacts described for Red Bluff Substation A.

Summary of Decommissioning Impacts

The impacts of decommissioning Alternative 1 with SF-B, GT-A-1 and Red Bluff Substation A would be similar to the impacts of construction. Decommissioning Alternative 1 would have the following impacts.

Delay at intersections would increase slightly; however, the LOS of these intersections would remain at "A," which is the highest standard of performance.

Portions of the Project would overlap low-level military flight paths and coordination with the military would be required. The Telecom Site would be approximately 5,500 feet from the runway of the former Desert Center Airport, and coordination with the airport owners would occur prior to construction.

Project-generated traffic would contribute to deterioration of local roads; however, Sunlight would document road conditions prior to and after construction and contribute fair share cost to required repairs.

Road or lane closures, traffic rerouting, and other traffic controls (such as flaggers) would be required for short durations during decommissioning of GT-A-1 for certain activities such as wire removal at road crossings; a Construction Traffic Control Plan (AM-TRANS-1) would be developed to ensure adherence to applicable regulations and implementation of industry-standard traffic controls.

Summary of Combined Impacts for Alternative 1

The construction and decommissioning of Alternative 1 with SF-B, GT-A-1 and Red Bluff Substation A would increase vehicle traffic in the area (TA-1 and TA-2); however, analysis of delay and LOS at Project intersections indicates that the intersections would continue to operate at an acceptable level (LOS "A"). Vehicle traffic during operation and maintenance would be less than that during construction and decommissioning; therefore, impacts would be reduced during this phase of the Project.

The construction and decommissioning of Alternative 1 have the potential to impact low-level military flight paths and the former Desert Center Airport. Coordination with the military, the airport owners would occur prior to Project construction. No impacts would occur during operation and maintenance because potential impacts and necessary mitigations would be agreed upon prior to construction.

Traffic associated with the construction and decommissioning of Alternative 1 would contribute to deterioration of local roads; however, Sunlight would document road conditions prior to and after construction and contribute fair share cost to required repairs. The volume of traffic associated with operation and maintenance would be too low to substantially contribute to road deterioration.

The construction and decommissioning of GT-A-1 would require road or lane closures, traffic rerouting, or other traffic controls such as flaggers for short durations for activities such as wire stringing.

Applicant Measures and Mitigation Measures

The following applicant measures (AMs) would be implemented to reduce adverse traffic impacts. No mitigation measures are proposed.

AM-TRANS-1: Sunlight shall prepare a Construction Traffic Control Plan in conjunction with Riverside County and/or Caltrans in accordance with Caltrans Manual on Uniform Traffic Control Devices and the California Joint Utility Traffic Control Manual (2010). At a minimum, the Plan shall address the following:

- Identify all necessary transportation permits, including those for oversize vehicles, hazardous materials transport, haul routes, and roadway ROW encroachment;
- Determine timing of heavy equipment and building materials deliveries, scheduling these trips for off-peak hours to the extent feasible;
- Determine timing of construction worker arrival and departure times, scheduling these trips for off-peak hours to the extent necessary;
- Determine need and procedures for redirecting construction traffic with a flagger;
- Determine need for signing, lighting, and traffic control device placement;
- Ensure access for emergency vehicles to the Project site and through temporary lane closures;
- Identify haul routes requiring rail crossings (outside the Project area) by oversize vehicles and safety measures to ensure no impacts would occur;

- Identify temporary lanes closure or other travel disruptions on road segments and at intersections (if lane closures are required on State Highways, demonstrate compliance with Section 517 of Caltrans' Encroachment Permits Manual);
- Ensure access to residential and commercial property near the Project; and
- Identify safety procedures for exiting and entering the site access gates.

AM-TRANS-2: Sunlight shall 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-TRANS-3: Sunlight shall 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-TRANS-4: Sunlight shall 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 regarding low-level flight operations relative to the Project to assure that no special precautions are needed.

CEQA Significance Determination

Solar Farm Layout B

TA-1 and TA-2

The construction and decommissioning of SF-B would increase vehicle traffic in the area; however, analysis of delay and LOS at impacted Project intersections indicates that the intersections would continue to operate at LOS "A," the highest standard of performance. LOS "A" is an acceptable performance level according to the Riverside County General Plan and Congestion Management Program. Therefore, impacts would be less than significant. However, AM-TRANS-1 would be implemented to further reduce the level of impacts. Vehicle traffic during operation and maintenance would be less than that during construction and decommissioning. Impacts would remain less than significant during this phase of the Project, but would be reduced compared to construction and decommissioning. Therefore, construction, operation, and decommissioning of SF-B would have less than significant impacts on the LOS at the Project's intersections.

The construction, maintenance, and decommissioning of SF-B would not result in any impacts to alternative modes of transport. Mass transit in the area is limited to commercial buses traveling I-10. Project-generated travel would be a small portion of traffic on I-10; therefore, there would be no noticeable impact. There are no bicycle or pedestrian facilities on Project roads; therefore, there would be no impact. Therefore, SF-B would have no impacts on alternative modes of transport.

TA-3

The construction and decommissioning of SF-B has the potential to interfere with low-level military flight path operations, resulting in a significant impact. To reduce the level of this impact, Sunlight would implement AM-TRANS-4 to coordinate with the military prior to construction. As such, construction and decommissioning of SF-B would have less-than-significant impacts on low-level military flight path operations. No impacts would occur during operation and maintenance because potential impacts and necessary mitigations would be agreed upon prior to construction. Therefore, construction, operation, and decommissioning of SF-B would have less-than-significant impacts on air traffic patterns.

Gen-Tie Line A-1

The CEQA significance determination would be the same as that described for SF-B for all impacts, TA-1 through TA-3.

Red Bluff Substation A

The CEQA significance determination would be the same as that described for SF-B for TA-1 and TA-2. For TA-3, the construction and decommissioning of the Telecom Site has the potential to interfere with operations at the former Desert Center Airport, resulting in a significant impact. To reduce the level of this impact, Sunlight would implement AM-TRANS-3 to coordinate with the airport owners prior to construction. . As such, construction and decommissioning of the Telecom Site would have less-than-significant impacts. No impacts would occur during operation and maintenance because potential impacts and necessary mitigations would be agreed upon prior to construction. Therefore, construction, operation, and decommissioning of the Telecom Site would have less-than-significant impacts on air traffic patterns.

Unavoidable Adverse Effects

No unavoidable adverse impacts would result from implementation of Alternative 1.

4.15.5 Alternative 2 – Alternate Action

Construction

Solar Farm Layout B

The impacts resulting from constructing SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

Construction impacts for GT-B-2 would be the same as those described for GT-A-1 in Alternative 1.

Red Bluff Substation B

Construction impacts for Red Bluff Substation B would be the same as those described for Red Bluff Substation A in Alternative 1.

Summary of Construction Impacts

The construction of Alternative 2 with SF-B, GT-B-2 and Red Bluff Substation B, would be the same as those described for Alternative 1.

Operation and Maintenance

Solar Farm Layout B

The impacts resulting from operating and maintaining SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

Operation and maintenance impacts for GT-B-2 would be the same as those described for GT-A-1 in Alternative 1.

Red Bluff Substation B

Operation and maintenance impacts for Red Bluff Substation B would be the same as those described for Red Bluff Substation A in Alternative 1.

Summary of Operation and Maintenance Impacts

The operation and maintenance impacts of Alternative 2 with SF-B, GT-B-2 and Red Bluff Substation B, would be the same as those described for Alternative 1.

Decommissioning

Solar Farm Layout B

The impacts resulting from decommissioning SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

Decommissioning impacts for GT-B-2 would be the same as those described for GT-A-1 in Alternative 1.

Red Bluff Substation B

Decommissioning impacts for Red Bluff Substation B would be the same as those described for Red Bluff Substation A in Alternative 1.

Summary of Decommissioning Impacts

The decommissioning impacts of Alternative 2 with SF-B, GT-B-2 and Red Bluff Substation B, would be the same as those described for Alternative 1.

Summary of Combined Impacts for Alternative 2

The combined impacts of Alternative 2 with SF-B, GT-B-2 and Red Bluff Substation B, would be the same as those described for Alternative 1.

Applicant Measures and Mitigation Measures

The measures identified for Alternative 1 would also be implemented under Alternative 2.

CEQA Significance Determination

Solar Farm Layout B

The CEQA significance determination for SF-B would be the same as that discussed under Alternative 1 for all criteria, TA-1 through TA-3.

Gen-Tie Line B-2

The CEQA significance determination for GT-B-2 would be the same as that discussed for GT-A-1 under Alternative 1 for all criteria, TA-1 through TA-3.

Red Bluff Substation B

The CEQA significance determination for Red Bluff Substation B would be the same as that discussed for Red Bluff Substation A under Alternative 1 for all criteria, TA-1 through TA-3.

Unavoidable Adverse Effects

No unavoidable adverse impacts would result from implementation of Alternative 2.

4.15.6 Alternative 3 – Reduced Footprint Alternative

Construction

Solar Farm Layout C

Impacts from construction of SF-C would be similar to those described for SF-B with the following exceptions. Because SF-C would be approximately 1,000 acres smaller, there would be some reduction in the amount of construction traffic, which would result in improved roadway system performance and reduced road deterioration. These differences would be small and have not been quantified. Therefore, the impact levels are assumed to be the same as those described for SF-B.

Gen-Tie Line A-2

Impacts from construction of GT-A-2 would be similar to those described for GT-A-1 with the following exception. GT-A-2 is located near the former Desert Center Airport, which is now a private special-use airport. 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. GT-A-2, with towers approximately 120 feet tall, would be located approximately 2,800 feet from the nearest point on the runway. GT-A-2 would require FAA notification if the airport were a public airport according to the standards set forth in 14 CFR Section 77; however, because the airport is now privately-owned, notification does not apply. Coordination with the FAA could still be prudent. Coordination with the airport owners (AM-TRANS-3) would occur prior to construction. Therefore, construction of GT-A-2 would not have any impacts on navigable airspace.

Red Bluff Substation A

The impacts resulting from constructing Red Bluff Substation A would be the same as those discussed under Alternative 1. The impacts discussed under Alternative 1 would not change with the alternate access road.

Summary of Construction Impacts

The construction impacts of Alternative 3 with SF-C, GT-A-2 and Red Bluff Substation A, would be the same as those described for Alternative 1 with the following exceptions. In addition to the Telecom Site (see Alternative 1), GT-A-2 would be approximately 5,500 feet from the runway of the former Desert Center Airport, and coordination with the airport owners would occur prior to construction.

Operation and Maintenance

Solar Farm Layout C

Impacts from operation and maintenance of SF-C would be similar to those described for SF-B with the following exception.

Gen-Tie Line A-2

Impacts from operation and maintenance of GT-A-2 would be the same as those described for GT-A-1 (Alternative 1).

Red Bluff Substation A

The impacts resulting from operating and maintaining Red Bluff Substation A would be the same as those described under Alternative 1. The impacts discussed under Alternative 1 would not change with the alternate access road.

Summary of Operation and Maintenance Impacts

The operation and maintenance impacts of Alternative 3 with SF-C, GT-A-2 and Red Bluff Substation A, would be the same as those described for Alternative 1

Decommissioning

Solar Farm Layout C

Impacts from decommissioning SF-C would be similar to those described for SF-B (see Alternative 1).

Gen-Tie Line A-2

Impacts from decommissioning GT-A-2 would be the same as those described for GT-A-1 (Alternative 1).

Red Bluff Substation A

The impacts resulting from decommissioning Red Bluff Substation A would be the same as those described under Alternative 1. The impacts discussed under Alternative 1 would not change with to the alternate access road.

Summary of Decommissioning Impacts

The decommissioning impacts of Alternative 3 with SF-C, GT-A-2 and Red Bluff Substation A, would be the same as those described for Alternative 1, with the exception that both the Telecom

Site and GT-A-2 would be approximately 2,800 feet from the runway of the former Desert Center Airport and coordination with the airport owners would occur prior to construction.

Summary of Combined Impacts for Alternative 3

The combined impacts of Alternative 3 with SF-C, GT-A-2 and Red Bluff Substation A, would be the same as those described for Alternative 1 with the following exceptions. In addition to the Telecom Site (see Alternative 1), GT-A-2 would be approximately 2,800 feet from the runway of the former Desert Center Airport, and coordination with the airport owners would occur prior to construction.

Applicant Measures and Mitigation Measures

The measures identified for Alternative 1 would also be implemented under Alternative 3.

CEQA Significance Determination

Solar Farm Layout C

The significance determination for SF-C would be the same as those described for SF-B (see Alternative 1) for all criteria, TA-1 through TA-3.

Gen-Tie Line A-2

The significance determination for GT-A-2 would be to the same as those described for GT-A-1 (see Alternative 1) for TA-1 and TA-2. For TA-3, the construction and decommissioning of GT-A-2 has the potential to interfere with operations at the former Desert Center Airport, resulting in a significant impact. To reduce the level of this impact Sunlight would implement AM-TRANS-3 to coordinate with the airport owners prior to construction. As such, construction and decommissioning of GT-A-2 would have less-than-significant impacts on air traffic patterns. No impacts would occur during operation and maintenance because potential impacts and necessary mitigations would be agreed upon prior to construction. Therefore, construction, decommissioning, and operation of GT-A-2 would have less-than-significant impacts on transportation.

Red Bluff Substation A

The CEQA significance determination for Red Bluff Substation A would be the same as that discussed under Alternative 1 for all criteria, TA-1 through TA-3. The impacts discussed under Alternative 1 would not change with the alternate access road.

Unavoidable Adverse Effects

No unavoidable adverse impacts would result from implementation of Alternative 3.

4.15.7 Alternative 4—No Issuance of a Right-of-Way Grant and No Land Use Plan Amendment (No Action)

Under this alternative, the proposed Desert Sunlight Solar Farm Project 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. As a result, the transportation and public access related impacts of the proposed Project would not occur at the proposed site. However, the land on which the Project is proposed would become available to other uses that are consistent with BLM's land use plan, including another solar project requiring a land use plan amendment. In addition, in the absence of this Project, other renewable energy projects may be constructed to meet state and federal mandates, and those projects would have similar impacts in other locations.

4.15.8 Alternative 5—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Unsuitable for Solar Energy Development (No Action with Plan Amendment)

Under this alternative, the proposed Desert Sunlight Solar Farm Project 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, 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 the CDCA Plan would be amended to make the area unavailable for future solar energy development, 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 increase in traffic. As a result, this No Action Alternative would not result in the impacts to transportation and public access under the proposed Project. However, in the absence of this Project, other projects (including other non-solar renewable energy projects) may be constructed on this site or others to meet state and federal mandates, and those projects would have similar impacts on this or other locations.

4.15.9 Alternative 6—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Suitable for Solar Development (No Action with Plan Amendment)

Under this alternative, the proposed Desert Sunlight Solar Farm Project would not be approved by the BLM and the BLM would amend the CDCA Plan to allow for other solar projects on the site. As a result, it is possible that another solar energy project could be constructed on the Project site. Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. As a result, the increases in traffic from the construction and operation of the solar project would likely be similar to the transportation and public access related impacts from the proposed Project. As such, this No Action Alternative could result in impacts to transportation and public access similar to the impacts under the proposed Project.

4.15.10 Cumulative Impacts

Geographic Extent

The geographic extent of the area impacted by transportation is the road network within and directly connected to the Project area because this defines the road network that would be affected by traffic generated by existing and foreseeable future projects.

The geographic extent of the area impacted by public access is the CDD because this is the area covered by the BLM's CDCA, the land use planning document that applies to the Project area.

The criteria by which transportation and public access impacts would be cumulatively considered significant are the same as those identified above in Section 4.15.2 and 4.15.3.

Existing Cumulative Conditions

Past development near the Project area includes those projects listed in Table 3.18-2. Projects 1 through 5, 7 and 8 have been implemented. Traffic associated with these projects would already be utilizing the road network and would therefore be accounted for in the traffic study performed by HKA and be part of the baseline for the Project-specific impact analysis. Project 6 is a project to designate additional energy corridors. Project 6 itself would not generate any traffic; however, future energy projects that utilize the newly designated corridors could add traffic to Project area's roads if they were sited and constructed within the Project area. Project 9 is the Kaiser iron ore mine, which was closed in 1983 and therefore would not contribute traffic to area roads. These projects have not resulted in cumulatively considerable impacts because they do not conflict with established standards of performance of the vehicle circulation system in the area (TA-1 and TA-2) because the system is currently operating at acceptable LOS. In addition, past development has not been located such that or contained features that would adversely impact air travel (TA-3).

The traffic study already accounted for traffic generated by these existing projects in the study's baseline data. Since the results of the traffic study demonstrate that the vehicular circulation would continue to operate acceptably and would therefore not conflict with established standards of performance (TA-1 and TA-2), the Project would not create a cumulatively considerable effect. Some alternatives of the Project could impact air travel (TA-3); however, these impacts have been reduced to less than significant by applicant measures and would therefore not be cumulatively considerable.

The Project would not create a cumulatively significant effect on public access given the development that has already occurred in the Project area. Currently, large tracts of BLM land are publicly accessible for designated multiple uses in the Project area. Past development, specifically the projects listed in Table 3.18-2, has generally had a relatively small footprint compared to the proposed Project and to the amount of BLM land in the area. As a result, public access has not been significantly impeded in the Project area.

The Project would reduce the amount of public land in the area available for public access, as several thousand acres of BLM land that would be covered by the Solar Farm and Red Bluff Substation would be fenced and off-limits to the public. Use of the land for the proposed Project would likely preclude use or development for other activities such as recreation or mining. However, because there are no active or specific plans or proposals for alternative use or development, impacts would be less than significant. Access to the two private water wells east of the Solar Farm site would not be impacted.

Future Foreseeable Projects

Foreseeable Projects in the Project Area

Table 3.18-3 lists foreseeable projects in the Project area, which is the I-10 corridor in eastern Riverside County. Projects H, J, Q, X, and Z have the potential to affect the local road network (excluding I-10; see Figure 3.18-2). Of these projects, X, the Eagle Mountain Soleil project, is similar in size to the proposed Project and would likely generate a similar amount of vehicle trips and other traffic and transportation impacts. The other projects are smaller and would likely generate a smaller number of vehicle trips and other traffic and transportation impacts.

Cumulative impacts would be greatest if the peak construction period of all of these projects overlapped. Although this worst-case scenario is unlikely, even if it were to occur, it is unlikely that the LOS of the affected intersections and roadway segments would degrade below "C," the allowable limit in the Riverside County General Plan Vehicle Circulation Element (Riverside County 2003), because the local road network currently operates at LOS "A" and the Project-generated traffic would not be sufficient to degrade the LOS this much.

Using intersection delay to quantify LOS, the proposed Project would only slightly increase the delay; however, the increase would place the amount of delay near the border between LOS "A" and "B." LOS "A" is defined as less than 10 seconds of delay and LOS "B" is defined as between 10 and 15 seconds of delay (Transportation Research Board 2000). In a worst-case scenario where construction peak periods overlapped for all projects proposed in the Project area, the LOS might temporarily degrade to "B" but would not likely degrade to "C." Both LOS "B" and "C" are allowable according to the Riverside County General Plan; therefore, the cumulative impact would be less than significant. Although the local road network would remain at an acceptable LOS, it is local residents and others who are familiar with the area may perceive the increase in traffic as significant because the existing volume of traffic is so low and the additional traffic would seem significant in comparison. Because the vehicle circulation system in the area would continue to operate within the established standards (TA-1 and TA-2), impacts would not be cumulatively considerable.

Cumulative impacts to I-10 have been considered separately from the remainder of the road network because, as the major transportation corridor in the area, it is likely that impacts from foreseeable future projects would be greater on I-10 than on other roads. It is likely that construction traffic, including tractor trailers, for all projects shown on Figure 3.18-2 would traverse some portion of I-10. Because the area is sparsely developed, it is likely that equipment and workers would have to travel long distances to project sites and could traverse a good portion of I-10 in eastern Riverside County regularly during their involvement with the projects. In a worst-case scenario where construction peak periods overlapped for all projects proposed in the Project area, the LOS of I-10 might temporarily degrade slightly, but would not likely degrade below the acceptable LOS "C." Additional delay at on- and off-ramps would be the most likely impact perceived by travelers. Even a worst-case scenario would not likely exceed the capacity of I-10, which has two lanes in both directions in this area. Both LOS "B" and "C" are allowable according to the Riverside County General Plan[2] .Because the vehicle circulation system in the area would

[2] The LOS standards identified in the General Plan were developed in consultation with the California Department of Transportation (Caltrans), Riverside County Transportation Commission, Riverside County, and local agencies.

continue to operate within the established standards (TA-1 and TA-2), impacts would not be cumulatively considerable.

There are many low-level military flight paths in the area and the implementation of these 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 (TA-3). There are few airports in the area and few if any projects would be in proximity to them. Any conflicts would be expected to be resolved between the affected airport and the proponent of the specific project; therefore, no cumulative impacts would result.

Since the results of the traffic study demonstrate that the vehicular circulation would continue to operate acceptably and would therefore not conflict with established standards of performance (TA-1 and TA-2), the Project would not create a cumulatively considerable effect. Some alternatives of the Project could impact air travel (TA-3); however, these impacts have been reduced to less than significant by applicant measures and would therefore not be cumulatively considerable.

Impacts to public access would be cumulatively considerable because the total amount of land proposed for conversion by the projects listed in Table 3.18-3 would substantially reduce the amount of publicly-accessible land in the area. However, the proposed Project would not make a cumulatively considerable contribution to this impact because it represents a small fraction of the total amount of land proposed for conversion.

Foreseeable Renewable Projects in the California Desert

Foreseeable renewable energy projects on BLM land in the CDD are listed in Table 3.18-1. Proposed projects outside of the I-10 corridor are not a consideration in the cumulative analysis of traffic and transportation for the proposed Project because traffic associated with these projects would not travel the same portions of the road network; therefore, no cumulative impacts would occur.

Impacts to public access would be cumulatively considerable because the total amount of land proposed for conversion by the projects listed in Table 3.18-1 would substantially reduce the amount of publicly-accessible land in the area. However, the proposed Project would not make a cumulatively considerable contribution to this impact because it represents a small fraction of the total amount of land proposed for conversion.

Overall Conclusion

Impacts to performance of the vehicular circulation system (TA-1 and TA-2) would not be cumulatively considerable and impacts would be less than significant because affected intersections and roadways would continue to operate at an acceptable LOS even given a worst-case scenario where peak project construction periods overlapped for all proposed projects. Impacts would be further reduced by the fact that peak construction periods and timing of construction traffic would likely be staggered, rather than occurring all at once. Since the results of the traffic study demonstrate that the vehicular circulation would continue to operate acceptably and would therefore not conflict with established standards of performance (TA-1 and TA-2), the Project would not create a cumulatively considerable effect.

There are many low-level military flight paths in the area and the implementation of these 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 (TA-3). There are few airports in the area and few if any projects would be in proximity to them. Any conflicts would be expected to be resolved between the affected airport and the proponent of the specific project; therefore, no cumulative impacts would result. Some alternatives of the Project could impact air travel (TA-3); however, these impacts have been reduced to less than significant by applicant measures and would therefore not be cumulatively considerable.

Impacts to public access would be cumulatively considerable because the total amount of land proposed for conversion by the projects listed in Table 3.18-1 would substantially reduce the amount of publicly-accessible land in the area. However, the proposed Project would not make a cumulatively considerable contribution to this impact because it represents a small fraction of the total amount of land proposed for conversion.

4.16 VISUAL RESOURCES

4.16.1 Methodology for Analysis

This visual resources impact analysis evaluates the potential impacts of the alternatives on visual resources in the region of influence. Construction, operation, maintenance, and decommissioning details are described in Chapter 2. Analyzing potential impacts on visual resources included conducting site visits, reviewing public scoping comments (Appendix A), preparing photo simulations of the alternatives, and using GIS for mapping.

For BLM land, the visual resource contrast rating process (Handbook H-8431-1, Visual Resource Contrast Rating) was used to identify impacts on visual resources. For non-BLM land, CEQA significance criteria, described below, were used to identify impacts on visual resources. As described in Chapter 2, both DSSF alternatives are on BLM land. Various Red Bluff Substation components are on BLM land and non-BLM land. For GT-A-1, approximately 11.4 miles would be on BLM land and approximately 0.6 mile would be on land owned in fee by MWD. For GT-B-2, approximately 9.4 miles would be on BLM land and approximately 0.6 mile would be on land owned in fee by the MWD. For GT-A-2, a total of 6.5 miles would be on BLM land and 4.0 miles would be on private land.

The visual resource contrast rating process is used to determine whether the potential visual impacts from proposed surface-disturbing activities or developments will meet visual resource management (VRM) objectives established for an area or whether design adjustments will be required. The analysis can be used as a guide for resolving visual impacts. The BLM may attach additional mitigation through stipulations, Conditions of Approval, or special design requirements to bring the proposal into compliance, to work with the proponent to modify the proposal or relocate it, or to deny the proposal.

According to Washington Office Information Bulletin Number 98-135, visual design techniques and BMPs should be incorporated to mitigate the potential for short-term and long-term impacts resulting from all resource uses and management activities. Examples of resource uses and management activities are energy development, utility corridors, road construction, recreation and OHV use, wildland fires, mining, vegetation treatments, and increased urban infrastructure needs and associated development on BLM lands (for example, roads, power lines, water tanks, and communication towers).

After reviewing the proposed Project and VRM objectives for the Project area, the visual resources contrast rating process involves selecting and visiting the most critical viewpoints (which are referred to as key observation points [KOPs]) for viewing Project components, preparing visual simulations, and then completing Form 8400-4 for each KOP. The KOPs were selected in coordination with the BLM and represent views of the Project area that viewer groups, described in Section 3.16, are likely to encounter (Figure 4.16-1). The following KOPs are used:

- KOP 1 is a northwestward view of the Project site from SR 177 near the Desert Lily Preserve. The DSSF site is approximately 2.5 miles from the KOP (Figure 4.16-2).

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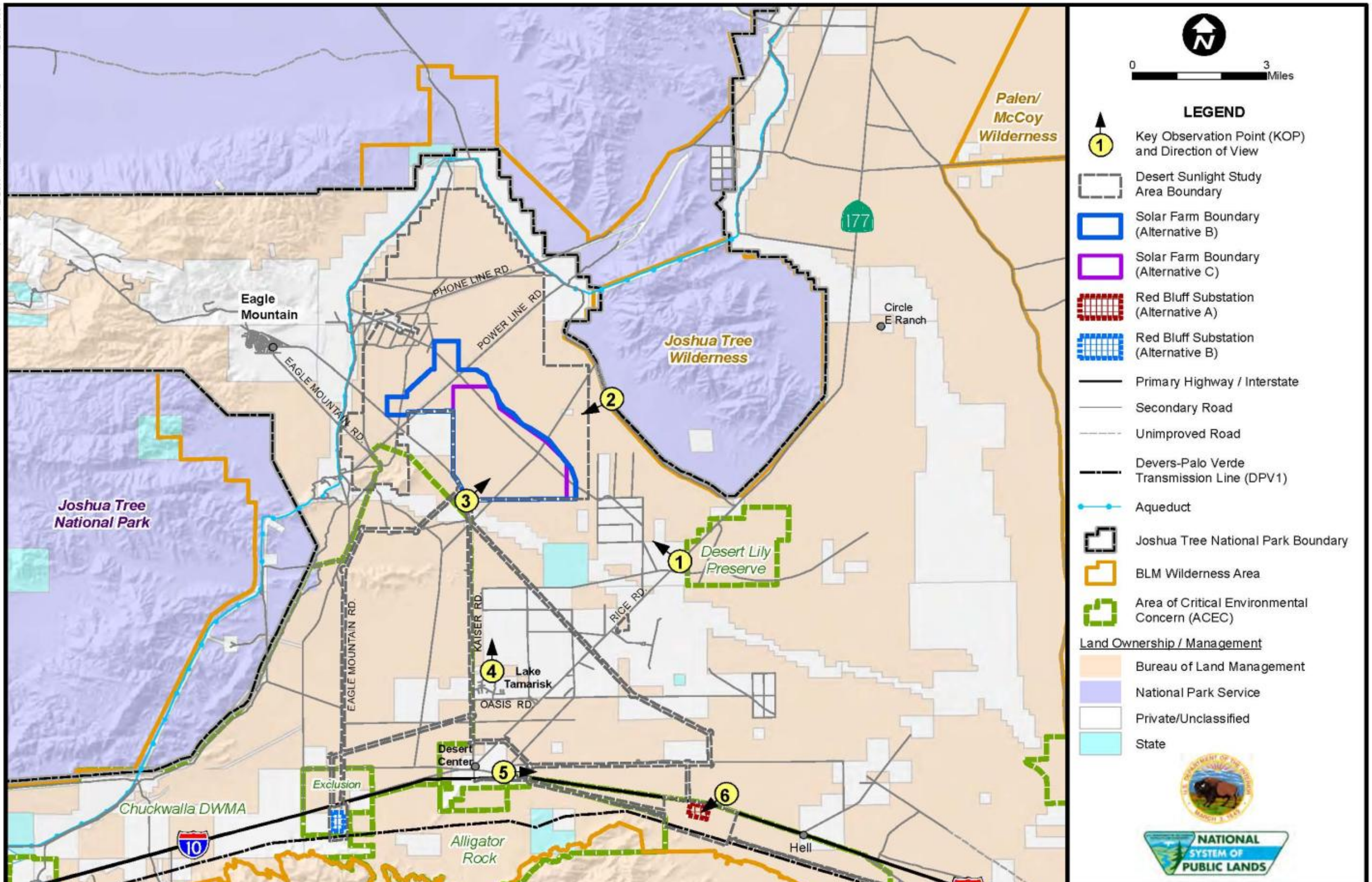

DESERT SUNLIGHT SOLAR FARM

Figure 4.16-1

Key Observation Points

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View towards proposed Desert Sunlight Solar Farm from State Highway 177 looking towards Eagle Mountain, Desert Center, California

Visual simulation depicting Desert Sunlight Solar Farm from State Highway 177

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DESERT SUNLIGHT SOLAR FARM

Figure 4.16-2

Key Observation Point (KOP) 1

- KOP 2 is a southwestward view from Joshua Tree National Park Wilderness Area, near the foot of the Coxcomb Mountains. The Solar Farm site is approximately 1.7 miles from the KOP (Figure 4.16-3). This KOP is not a typical viewing area but is included as a representative site for the occasional hiker who may use this remote and relatively inaccessible portion of the park.
- KOP 3 is an eastward view of the Solar Farm site from Kaiser Road. The Solar Farm is adjacent to Kaiser Road (Figure 4.16-4).
- KOP 4 is a northward view of the Solar Farm and Gen-Tie Line A-1 sites from Lake Tamarisk. The Solar Farm site is approximately four miles from the KOP. The Gen-Tie Line site is adjacent to Kaiser Road (Figure 4.16-5).
- KOP 5 is an eastward view of the Gen-Tie Line A-1 site from Ragsdale Road at Desert Center. The Gen-Tie Line site is approximately three-quarters of a mile north of Ragsdale Road (Figure 4.16-6).
- KOP 6 is a southwestward view of Red Bluff Substation A and Gen-Tie Line A-1 sites from I-10. Gen-Tie Line A-1 is approximately 0.6 mile from the KOP. The Substation site is approximately 0.2 mile from the KOP (Figure 4.16-7).

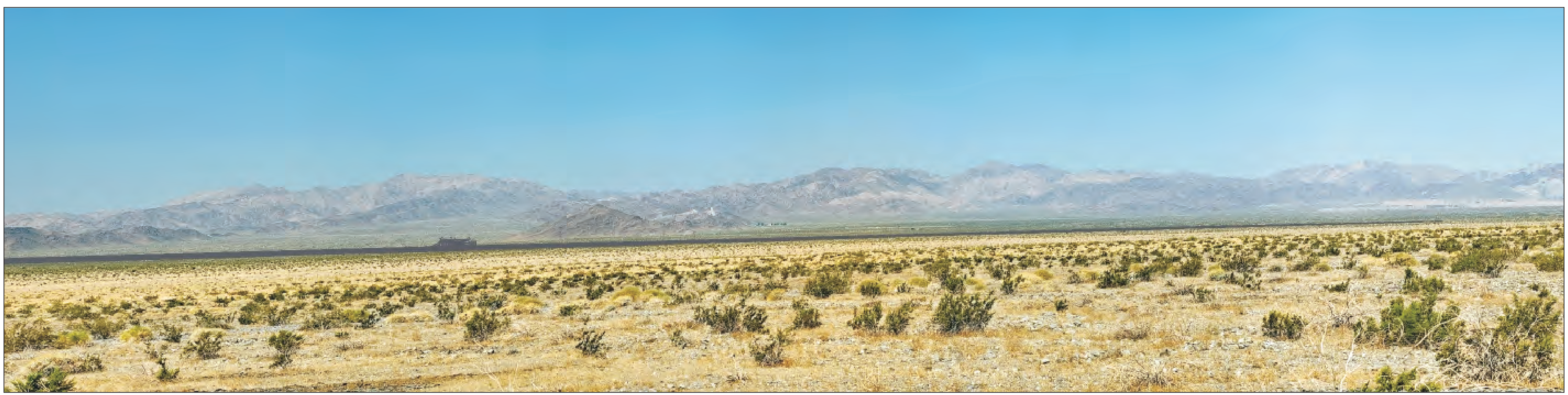
KOPs 1, 2, 3, 4, and 6 provide general scenic vistas across the landscape. KOPs 3, 4, 5, and 6 provide views of the visual character/quality (local setting), depending on the component of the Project.

After preparing the visual simulations, the visual contrast rating process involves identifying the degree of contrast between simulated Project features and the major features (land/water, vegetation, and structures) in the existing landscape using the basic design elements of form, line, color, and texture by completing Form 8400-4 for each KOP. The degree of contrast is characterized as none, weak, moderate, or strong. When there is no degree of contrast between the existing landscape and proposed Project features, the proposed Project features are not visible or perceived. A weak degree of contrast can be seen but does not attract attention. A moderate degree of contrast begins to attract attention and begins to dominate the characteristic landscape. A strong degree of contrast demands attention, will not be overlooked, and is dominant in the landscape. The completed forms are maintained at the BLM Palm Springs-South Coast Field Office.

In addition to using the visual resource contrast rating process to assess changes to the characteristic landscape, FLPMA requires coordination with local planning. A Project's inconsistency with local plans, policies, and regulations pertaining to visual resources may also lead to a significant impact determination.

Table 4.16-1 compares the area of temporary and permanent disturbance for the action alternatives. Impacts on visual resources are related to the amount of area disturbed by an alternative. The impacts on visual resources are detailed below under each alternative.

View southwest from Joshua Tree National Park Wilderness Area, near the foot of the Coxcomb Mountains, showing existing conditions in the area of the proposed Desert Sunlight Solar Farm, Desert Center, California.



Visual simulation depicting the Desert Sunlight Solar Farm.

DESERT SUNLIGHT SOLAR FARM

Figure 4.16-3

Key Observation Point (KOP) 2

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View northeast from Kaiser Road at the southern boundary of the proposed Desert Sunlight Solar Farm showing existing conditions, Desert Center, California.

Visual simulation depicting the Desert Sunlight Solar Farm On-Site Substation and Gen-Tie Line.

DESERT SUNLIGHT SOLAR FARM

Figure 4.16-4

Key Observation Point (KOP) 3

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View north towards proposed Desert Sunlight Solar Farm from Shasta Drive, Lake Tamarisk, California

Visual simulation depicting Desert Sunlight Solar Farm and Gen-tie Line A-1 from Shasta Drive, Lake Tamarisk, California

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DESERT SUNLIGHT SOLAR FARM

Figure 4.16-5

Key Observation Point (KOP) 4

View east along Ragsdale Road showing existing conditions, Desert Center, California.

Visual simulation depicting Gen-Tie line A-1 approximately 0.75 of a mile north of Ragsdale Road with Interstate 10 crossover to Red Bluff Substation.

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DESERT SUNLIGHT SOLAR FARM

Figure 4.16-6

Key Observation Point (KOP) 5

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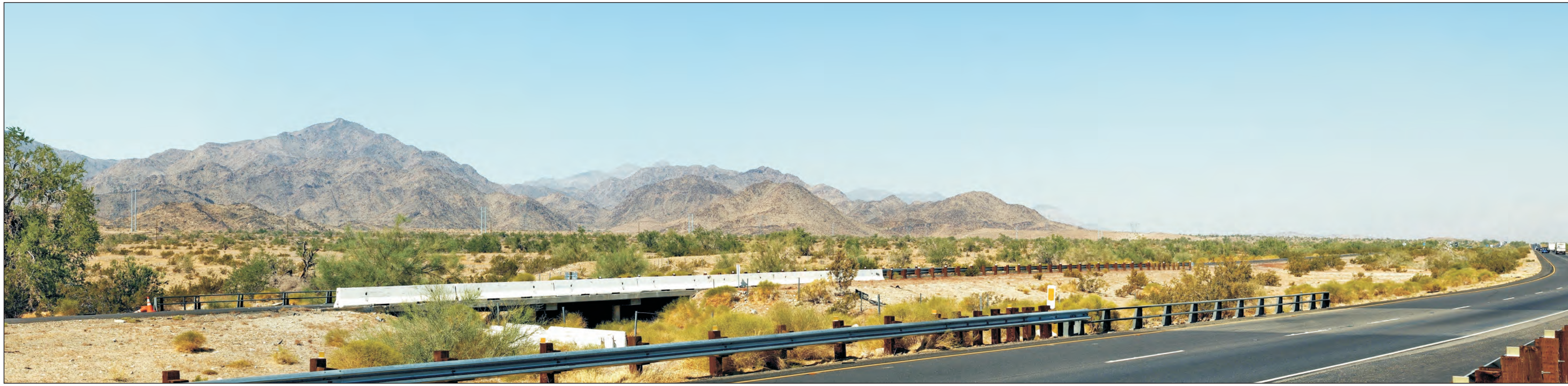

View southwest along Interstate 10 showing existing conditions, Desert Center, California.

Visual simulation depicting Red Bluff Substation Alternative A, Gen-Tie Line A-1, and Loop-In Transmission Line towers approximately 0.2 mile southwest of viewpoint.

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DESERT SUNLIGHT SOLAR FARM

Figure 4.16-7

Key Observation Point (KOP) 6

Table 4.16-1
Comparison of Action Alternative Features Relevant to Visual Resources

Project Activity	Project Component (Includes All Related Features)	Type of Disturbance	Alternative 1	Alternative 2	Alternative 3
Construction*	**Solar Farm**	**Temporary**	0	0	0
Construction*	**Solar Farm**	**Permanent**	4,245	4,245	3,045
Construction*	**Gen-Tie Line**	**Temporary**	86	67	75
Construction*	**Gen-Tie Line**	**Permanent**	18	11	23
Construction*	**Substation**	**Temporary**	37.79	28.63	37.79
Construction*	**Substation**	**Permanent**	127.57	89.56	127.57
Operation and Maintenance	**Solar Farm**	**Temporary**	0	0	0
Operation and Maintenance	**Solar Farm**	**Permanent**	4,245	4,245	3,045
Operation and Maintenance	**Gen-Tie Line**	**Temporary**	0	0	0
Operation and Maintenance	**Gen-Tie Line**	**Permanent**	18	11	23
Operation and Maintenance	**Substation**	**Temporary**	0	0	0
Operation and Maintenance	**Substation**	**Permanent**	127.57	89.56	127.57
Decommissioning	**Solar Farm**	**Temporary**	0	0	0
Decommissioning	**Solar Farm**	**Permanent**	4,245	4,245	3,045
Decommissioning	**Gen-Tie Line**	**Temporary**	0	0	0
Decommissioning	**Gen-Tie Line**	**Permanent**	18	11	23
Decommissioning	**Substation**	**Temporary**	0	0	0
Decommissioning	**Substation**	**Permanent**	127.57	89.56	127.57

*Temporary construction disturbances involve acres that are disturbed during construction but that are reclaimed to predisturbance condition once construction ends. Permanent construction disturbances involve acres that are disturbed during construction and remain disturbed once construction ends.

Under Alternative 1, there would be long-term impacts from construction, operation, and maintenance. For SF-B, GT-A-1, and Red Bluff Substation A (with Access Road 2), this would result in the temporary disturbance of 123.79 acres and the permanent disturbance of 4,390.57 acres.

Under Alternative 2, there would be long-term impacts from construction, operation, and maintenance. For SF-B, GT-B-2, and Red Bluff Substation B, this would result in the temporary disturbance of 95.63 acres and the permanent disturbance of 4,345.56 acres.

Under Alternative 3, there would be long-term impacts from construction, operation, and maintenance. For SF-C, GT-A-2, and Red Bluff Substation A (with Access Road 1), this would result in the temporary disturbance of 112.79 acres and the permanent disturbance of 3,195.57 acres.

For Alternatives 1, 2, and 3, there would be long-term impacts from decommissioning. At a minimum, decommissioning is expected to restore the landscape to predisturbance conditions.

The visual resource contrast rating stage assesses changes to the characteristic landscape (i.e., land, water, vegetation, and structures) of BLM land from certain KOPs. Similarly, CEQA significance criteria listed below address changes to these landscape elements for specific visual resources on non-BLM land (e.g., broad scenic vistas and local settings).

4.16.2 CEQA Significance Criteria

Under CEQA, the proposed Project would have a significant impact on visual resources on non-BLM land if it would:

VR-1. Have a substantial adverse effect on a scenic vista;

VR-2. Substantially degrade the existing visual character or quality of the site and its surroundings;

VR-3. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area; or

VR-4. Substantially damage scenic resources, including trees, rock outcroppings, and historic buildings within a state scenic highway.

For the proposed Project, the following was determined to be inapplicable or to result in no impact:

VR-4. Substantially damage scenic resources, including trees, rock outcroppings, and historic buildings within a state scenic highway. Because there are no officially designated state scenic highways in the region of influence for visual resources, the alternatives would have no impact on substantially damaging scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. Therefore, this significance criterion is not addressed further..

Impacts are characterized as beneficial or adverse and as short-term or long-term. Also, the intensity of impacts are characterized as no impact, less than significant impact, less than significant impact with mitigation incorporated, and significant and unavoidable impact.

4.16.3 Alternative 1 – Proposed Action

The following configurations of the three Project components are proposed:

- Solar Farm Layout B (SF-B);
- Gen-Tie Line A-1 (GT-A-1); and
- Red Bluff Substation A, with Access Road 2.

Figure 4.16-8 shows the viewshed for Alternative 1. It shows the areas within 15 miles of Alternative 1 from which Alternative 1 buildings and structures would be visible. The analysis below identifies the impacts on visual resources from KOPs within the viewshed.

Construction

Solar Farm Layout B

Construction of SF-B would require clearance of approximately 4,245 acres. Craft workers, management employees, and non-craft employees are expected on site. There would be an average of 390 to 440 and a peak of 540 total on-site workers for the Solar Farm construction. Material delivery trips and construction equipment and vehicles are detailed in Chapter 2.

Typical construction work schedules are expected to be 8 hours per day Monday through Friday. Typically, the work day would consist of one shift beginning at 7:00 am and ending at 3:30 pm. The work schedule may be modified throughout the year to account for changing weather conditions (e.g., starting the work day earlier in summer months to avoid work during the hottest part of the day for health and safety reasons).

Construction activities would be temporary and limited to the duration of the construction schedule. Also, certain construction impacts, such as material deliveries, are not expected to be constant during the work week or to happen at all on weekends.

Interim Visual Management Class

Readily available views of SF-B are available from KOPs 1, 2, 3, and 4. Construction activities, equipment, and vehicles would be visible from these KOPs.

Construction activities would disturb the ground surface by removing low-growing vegetation, shifting soil, and altering drainage patterns. Surface disturbances would affect visual resources by creating exposed soil across the landscape with a different texture and color and by creating land barren of low-growing vegetation, aggregate, and topsoil.

A butt edge of vegetation would appear along roads, because the roads would lack vegetation found on adjacent land. The band of road lines would abruptly divide the landscape, because the roads would lack vegetation and the natural lines of the topography would be altered.

Construction activities would generate dust from the movement of vehicles, from excavation work, and from wind blowing across exposed soil. Fugitive dust would affect visual resources by diminishing atmospheric clarity.

Construction activities would use lights for safety and illuminating work areas. This would affect visual resources, because construction lights would add light to areas absent of light sources. The work schedule, however, does not involve nighttime work.

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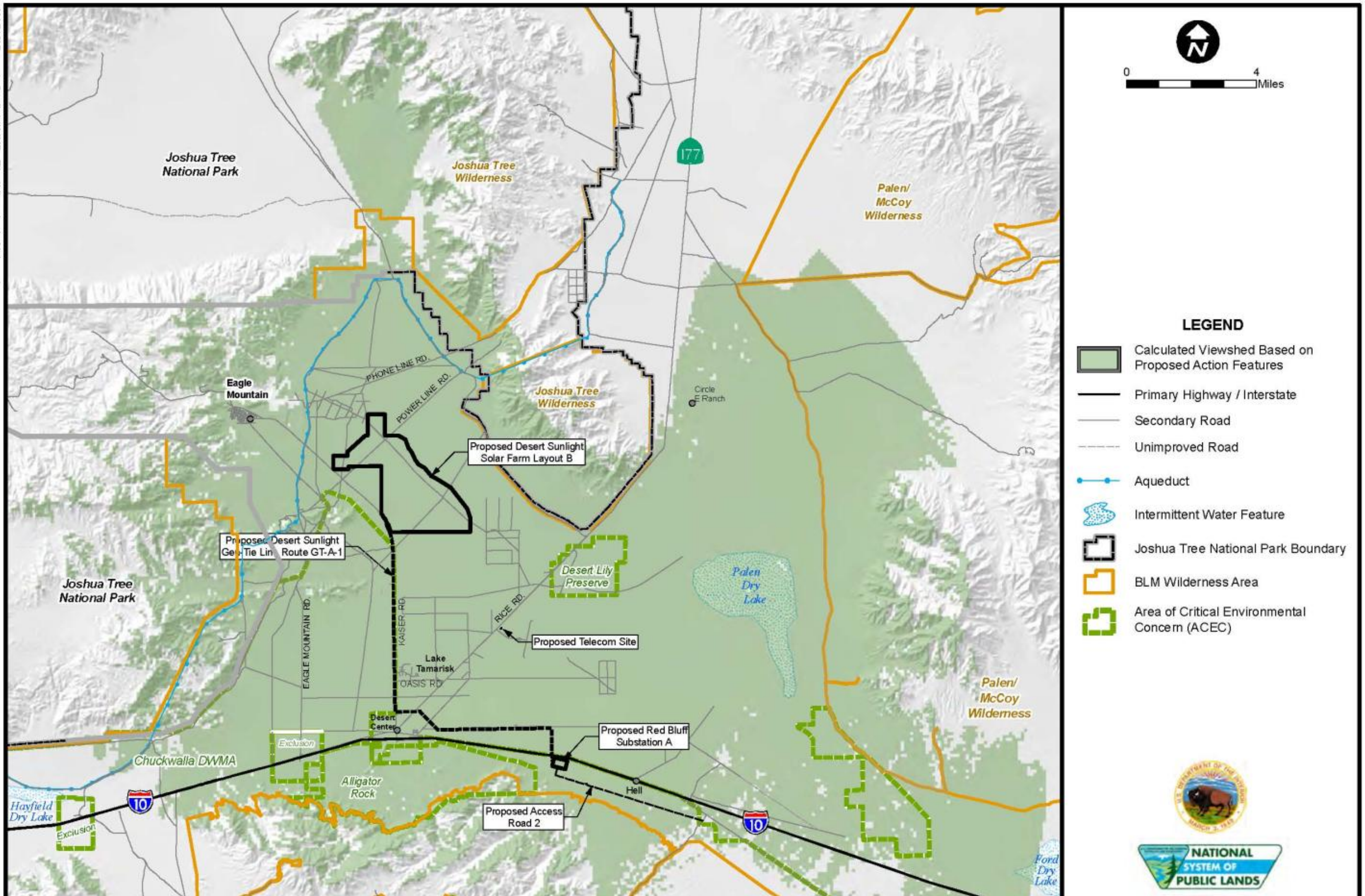

Figure 4.16-8

Viewshed Analysis - Proposed Action

Because of the presence of construction equipment and vehicles, there would be glare from reflective surfaces. The intensity and amount of glare would vary throughout the day and would also depend on atmospheric conditions. For example, there would likely be less glare during overcast days than sunny days. The intensity and amount of glare would also vary during the construction cycle. For example, the potential for glare would vary depending on the amount of construction equipment and vehicles present.

Construction activities would involve material deliveries to the Project site, as well as the presence of construction equipment and vehicles. The construction activities would affect visual resources by adding a noticeable level of commotion to an area with little activity. Also, the color of construction equipment and vehicles would not resemble the muted tans and greens of the terrain and vegetation.

Construction activities may generate litter capable of being blown by the wind across the flat desert. This would affect visual resources, because the blight of litter draws attention away from the natural landscape aesthetics.

Although SF-B is in the foreground-middle ground distance zone for KOPs 1, 2, 3, and 4 the KOPs are not all the same distance from SF-B. The degree of contrast, therefore, varies depending on the exact location of the KOP. For KOP 3, the degree of contrast would be strong, involving vegetation changes and structures from construction , due to the proximity of KOP 3 to SF-B and the lack of screening elements to block direct views of the Project. Due to distance, however, the degree of contrast would be weak to moderate for KOPs 1, 2, and 4 because there would be less of a contrast involving vegetation changes and structures from construction.

Viewer groups affected by these impacts include limited recreation users in the surrounding mountains and dispersed recreation users on the valley floor; nearby residents in Lake Tamarisk and dispersed private land; visitor-serving businesses in Desert Center; and roadway traffic on Kaiser Road, SR 177, and I-10. Construction activities, vehicles, and equipment at the Project site, as well as en route to the Project site, would be visible to these viewer groups.

Local Plans, Policies, and Regulations

Local plans, policies, and regulations do not address visual resources during temporary construction. They focus more on permanent or long-term elements visible in the landscape, which are addressed below under Operation and Maintenance, as well as Decommissioning.

Gen-Tie Line A-1

Construction for GT-A-1 along the 12-mile by 160-foot wide transmission corridor would result in the temporary disturbance of 86 acres and the permanent disturbance of 18 acres. The workforce for the Gen-Tie Line is expected to average 25 employees over the 20-month Gen-Tie construction period. Material delivery trips and construction equipment and vehicles are detailed in Chapter 2.

Interim Visual Management Class

Views of GT-A-1 are available from KOPs 1, 2, 3, 4, 5, and 6. Impacts from construction activities, equipment, and vehicles would be visible from these KOPs. Impacts similar to those described above under SF-B Interim Visual Management Class would occur during construction of GT-A-1.

However, GT-A-1 would disturb a substantially smaller area (see Table 4.16-1) and would be constructed in less time.

Although GT-A-1 is in the foreground-middle ground distance zone for KOPs 1 through 6, the KOPs are not all the same distance from GT-A-1. Therefore, the degree of contrast, varies, depending on the exact location of the KOP. For KOPs 3, 4, and 6, the degree of contrast would be strong, involving vegetation changes and structures from construction due to the proximity of the KOPs to GT-A-1 and the lack of screening elements to block direct views of the Project. Due to distance, however, the degree of contrast would be weak to moderate for KOPs 1, 2, and 5 because there would be less of a contrast involving vegetation changes and structures from construction.

Viewer groups affected by impacts at these KOPs include limited recreationists in the surrounding mountains and dispersed recreationists on the valley floor, nearby residents in Lake Tamarisk and dispersed private land, visitor-serving businesses in Desert Center, and roadway traffic on Kaiser Road, SR 177, and I-10.

Local Plans, Policies, and Regulations

Local plans, policies, and regulations do not address visual resources during temporary construction. They focus more on permanent or long-term elements visible in the landscape, which are addressed below under Operation and Maintenance, as well as Decommissioning.

Red Bluff Substation A

Construction of Red Bluff Substation A includes the substation itself and related components, such as Access Road 2 and telecommunications facilities. It would result in 127.57 acres of permanent disturbance and 37.79 acres of temporary disturbance. Approximately 25 construction personnel would work on any given day. Material delivery trips and construction equipment and vehicles are detailed in Chapter 2.

Interim Visual Management Class

Views of Red Bluff Substation A site are available from KOP 6. Impacts from construction, equipment, and vehicles would be visible from this KOP. Impacts similar to those described above under SF-B Interim Visual Management Class would occur during construction of Red Bluff Substation A. However, Red Bluff Substation A would disturb a substantially smaller area (see Table 4.16-1) and would be constructed in less time. Due to the KOP proximity and the lack of screening elements to block direct views of the Project, the degree of contrast would be strong, involving vegetation changes and structures from construction activities. Although viewers typically expect artificial elements next to highways, they also expect they elements to be clustered instead of spread across the landscape. Viewer groups affected by impacts at KOP 6 include dispersed recreationists on the valley floor, as well as I-10 travelers.

Local Plans, Policies, and Regulations

Local plans, policies, and regulations do not address visual resources during temporary construction. They focus more on permanent or long-term elements visible in the landscape, which are addressed below under Operation and Maintenance, as well as Decommissioning.

Summary of Construction Impacts

Construction of SF-B, GT-A-1, and Red Bluff Substation A would result in the temporary disturbance of 123.79 acres and the permanent disturbance of 4,390.57 acres. As described above, impacts from construction activities, equipment, and vehicles would be visible. The changes to the characteristic landscape from construction would alter visual resources. For KOPs 1, 2, and 5, the degree of contrast would comply with interim visual management Class II and III objectives. This is because changes to the characteristic landscape can be either low or moderate. For KOPs 3, 4, and 6, the strong degree of contrast would not comply with interim visual management Class II and III objectives.

The BLM VRM System allows the BLM to require mitigation to bring a proposed Project into greater compliance with class objectives in order to protect and preserve visual resources. The level of change to the characteristic landscape would be reduced with the implementation of Mitigation MM-VR-1 through MM-VR-3, described below under Applicant Measures and Mitigation Measures.

Local plans, policies, and regulations do not address visual resources during temporary construction. They focus more on permanent or long-term elements visible in the landscape, which are addressed with respect to operation and maintenance, as well as decommissioning.

Operation and Maintenance

Solar Farm Layout B

SF-B would occupy approximately 4,245 acres. The Solar Farm site would consist of several main components:

- Main Generation Area - PV arrays, combining switchgear, overhead lines, and access corridors;
- Operation and Maintenance (O&M) Facility;
- Solar Energy Visitors Center;
- On-site Substation; and
- Site Security, Fencing, and Lighting.

The workforce for O&M and security purposes is estimated at an average of 10 full time workers, up to 15 workers maximum. Typical work schedules are expected to be in two 12-hour shifts of 10 workers each. In addition, there will be 24-hour on-site security (two 12-hour shifts anticipated, with two guards each shift).

Interim Visual Management Class

Views of SF-B are available from KOPs 1, 2, 3, and 4. Operation and maintenance would be visible from these KOPs.

The natural terrain would be graded to allow for the operation of SF-B. The flat form of the power array would mimic the relatively flat form of the valley floor, but would contrast with the rugged mountains. The wide mass of SF-B would dwarf the smaller artificial and natural forms in the landscape. SF-B components would appear to be a single mass that could block views, depending on viewer location. The angular form of SF-B would stand out against the rounded and curving forms of the vegetation and mountains. SF-B would have a more repetitive and ordered form than that of surrounding landscape elements, which is mostly vegetation.

The linear and abrupt edges of SF-B lines would stand out against the natural curvilinear and continuous lines of the landscape. The linear lines of SF-B, however, would repeat the artificial lines of nearby roads. A butt edge of vegetation would appear around SF-B because the land occupied by SF-B would be cleared of vegetation.

The shades of black and gray of SF-B would contrast with the muted tans and greens of the terrain and vegetation. This contrast would occur during all seasonal variations in flora color. The only areas within the main array that would be lighter in color would be along the access roads and the power array electrical collection buildings.

The smooth texture of the power array would mimic the relatively smooth texture of the valley floor, but would contrast with the rough mountains. The smooth texture of the power array would also contrast with the coarse texture of the vegetation.

Even though night lighting at SF-B would be limited, artificial lighting would be introduced to the area, thereby decreasing nighttime darkness. Based on local recreation activities and public concern, this area is highly valued for its nighttime darkness. New sources of nighttime light would be noticed. Because SF-B uses PV arrays, glare from the arrays is less than that of arrays that use parabolic mirrors to collect heat energy from the sun and refocus the radiation on a receiver tube. Also, exterior lights on the site would be shielded and focused downward and toward the interior of the site to minimize lighting and glare impacts on the night sky and on surrounding areas.

Although SF-B is in the foreground-middle ground distance zone for KOPs 1, 2, 3, and 4, the KOPs are not all the same distance from SF-B. Therefore, the degree of contrast varies, depending on the exact location of the KOP. For KOP 3, the degree of contrast would be strong, involving vegetation changes and structures due to the proximity of KOP 3 to SF-B and the lack of screening elements to block direct views of the Project. Due to distance, however, the degree of contrast would be weak to moderate for KOPs 1, 2, and 4 because there would be less of a contrast involving vegetation changes and structures.

Viewer groups affected by these impacts at KOP 3 include nearby residents on dispersed private land and roadway traffic on Kaiser Road. Viewer groups affected by these impacts at KOPs 1, 2, and 4 include dispersed recreational users on the valley floor; nearby residents in Lake Tamarisk, and roadway traffic on SR 177.

Local Plans, Policies, and Regulations

Given the impacts described above under Interim Visual Management Class, SF-B would not meet Riverside County General Plan policies. The size, composition, style, color, and location of SF-B are incompatible with the policies.

Gen-Tie Line A-1

Operation and maintenance for GT-A-1 would result in the permanent disturbance of 18 acres. Approximately 73 transmission structures would be required for this alternative, including 65 tangents and 8 dead-ends. The Applicant proposes to use steel monopoles for GT-A-1. Poles are expected to be approximately 120 feet tall. Typical spacing between structures would be approximately 900 to 1,100 feet. Self-weathering steel would be used for the monopoles. There would be 7.3 miles of access roads that are 14 feet wide.

Interim Visual Management Class

Varying views of GT-A-1 are available from KOPs 1, 2, 3, 4, 5, and 6. Operation and maintenance would be visible from these KOPs.

GT-A-1 would cut across the landscape and would mostly follow existing roads, some of which already have utility lines nearby. Although GT-A-1 would not be a new utility line to cross the landscape, its size, shape, and composition would be different from the other utility lines.

The regular, narrow, and relatively tall form of the monopoles would be spaced intermittently along GT-A-1. This would create a continuous line of artificial vertical elements connected by discrete wires across the relatively flat landscape. Also, it would reduce the openness of the landscape by visually dividing the valley. Self-weathering steel would be used for the monopoles, which would blend in with the surrounding mountains better than other finishes. Although the even and ordered texture of the monopoles would mimic the texture of other utility lines, it would not resemble the texture of any other landscape element.

GT-A-1 would not contain sources of light. Also, the monopoles would be composed of self-weathering steel, thereby reducing glare.

Although GT-A-1 is in the foreground-middle ground distance zone for KOPs 1, 2, 3, 4, 5, and 6, the KOPs are not all the same distance from GT-A-1. The degree of contrast, therefore, varies depending on the exact location of the KOP. For KOPs 3, 4, and 6, the degree of contrast would be strong, involving vegetation changes and structures due to the proximity of the KOPs to GT-A-1, the lack of screening elements to block direct views of the Project, and the height and number of artificial structures. Due to distance, however, the degree of contrast would be weak to moderate for KOPs 1, 2, and 5 because there would be less of a contrast involving vegetation changes and structures.

Because it would traverse across the landscape, GT-A-1 would be visible by various viewer groups. Viewer groups affected by these impacts at these KOPs include limited recreationists in the surrounding mountains and dispersed recreationists on the valley floor; nearby residents in Lake Tamarisk and dispersed private land; visitor-serving businesses in Desert Center; and roadway traffic on Kaiser Road, SR 177, and I-10.

Local Plans, Policies, and Regulations

Given the impacts described above under Interim Visual Management Class, SF-B would not meet Riverside County General Plan policies. The size, composition, style, color, and location of SF-B are incompatible with the policies.

Red Bluff Substation A

Red Bluff Substation A operation and maintenance includes the substation and related components:

- Red Bluff Substation;
- Transmission Lines (to connect substation to DPV1);
- Gen-Tie Line Connection;
- Modification of Existing 220-kV Structures;
- Distribution Line for Substation Light and Power;
- Telecommunications Facilities;
- Drainage Facilities; and
- Access Road.

The topography of the site would be altered to protect the site from flooding. Access Road 2 would be used to access Red Bluff Substation A. It would result in 127.57 acres of permanent disturbance.

Interim Visual Management Class

Views of Red Bluff Substation A are available from KOP 6. Operation and maintenance would be visible from this KOP.

The form of Red Bluff Substation A would not resemble any other form in the landscape. The regular, geometric, and relatively tall form of Red Bluff Substation A and telecommunication facilities would contrast with the undulating form of the terrain and the scattered, ragged, and short form of the vegetation. The narrow vertical elements would create multiple prominent focal points on a relatively flat landscape and dwarf other landscape elements, which is mostly vegetation.

The rigid horizontal and vertical lines of the substation would stand out against the sloped and rounded lines of the terrain and vegetation. A butt edge of vegetation would appear around Red Bluff Substation A, because the land occupied by Red Bluff Substation A would be cleared of vegetation. The band of the access road line would abruptly divide the landscape, because vegetation would be cleared and the natural lines of the topography would be altered. Also, the widening of an existing road would increase the visibility of this road.

Lattice steel towers and tubular steel poles would be galvanized steel with a dulled grey finish. If chain link fence is used, it would have a dulled-finish. The color of the facilities would not resemble the muted tans and greens of the terrain and vegetation. Also, the color of the compacted aggregate of the access road would not resemble the tan color of the surrounding terrain.

The rigid texture of Red Bluff Substation A and telecommunication facilities would stand out against the smooth texture of the terrain and coarse and prickly texture of the vegetation. The moderately smooth access road would approximate the smooth texture of the terrain.

Even though night lighting at Red Bluff Substation A and telecommunication facilities would be limited, artificial lighting would be introduced to the area, thereby decreasing nighttime darkness. Exterior lights on the site would be shielded and focused downward and toward the interior of the site to minimize lighting and glare impacts on the night sky and on surrounding areas. Although the valley and mountains are highly valued for their nighttime darkness (based on local recreation activities and public concern), the areas immediately adjacent to I-10 are already affected by light and glare from I-10 traffic.

Red Bluff Substation A and telecommunication facilities are in the foreground-middle ground distance zone for KOP 6. From KOP 6, the degree of contrast described above would be strong because of the lack of screening elements to block direct views of the site, the height and number of artificial structures, and the proximity of KOP 6 to the Project. Although viewers typically expect artificial elements next to highways, they also expect the elements to be clustered instead of spread across the landscape. Activity on I-10, however, partially distracts views from KOP 6 away from the site. Also, because of the curving nature of I-10 and travelers moving at highway speed, the site would be visible in the foreground distance zone for a limited amount of time.

Viewer groups affected by these impacts at KOP 6 are dispersed recreationists on the valley floor and I-10 travelers.

Local Plans, Policies, and Regulations

Given the impacts described above under Interim Visual Management Class, Red Bluff Substation A would not meet Riverside County General Plan policies. The size, composition, style, color, and location of Red Bluff Substation A are incompatible with these policies.

Summary of Operation and Maintenance Impacts

Operation and maintenance of SF-B, GT-A-1, and Red Bluff Substation A would result in the permanent disturbance of 4,390.57 acres. As described above, impacts from operation and maintenance would be visible. The changes to the characteristic landscape from operation and maintenance would alter visual resources. For KOPs 1, 2, and 5, the degree of contrast would comply with interim visual management Class II and III objectives, because changes to the characteristic landscape can be either low or moderate. Due to the proximity of KOPs 3, 4, and 6 to Project components, the degree of contrast would not comply with interim visual management Class II and III objectives.

The BLM VRM System allows the BLM to require mitigation to bring a proposed Project into greater compliance with class objectives in order to protect and preserve visual resources. The level of change to the characteristic landscape would be reduced with the implementation of Mitigation MM-VR-4 through MM-VR-6, described below under Applicant Measures and Mitigation Measures.

The size, composition, style, color, and location of Project components are incompatible with Riverside County General Plan policies. Because of the operation and maintenance impacts described above, the Project would not comply 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.

Decommissioning

As required by BLM ROW regulations, a detailed Decommissioning and Reclamation Plan (Decommissioning Plan) will be developed in a manner that both protects public health and safety and is environmentally acceptable. Decommissioning of facilities is detailed in Chapter 2.

Solar Farm Layout B

Interim Visual Management Class

Views of SF-B are available from KOPs 1, 2, 3, and 4. Decommissioning would be visible from these KOPs. Removal of artificial buildings and structures would return the developed site to an undeveloped site. Decommissioning would return natural form and contours to the landscape. It would reestablish native vegetation and natural habitat, such as rocks or logs, to the land. The vegetation would be reestablished to resemble the form and line of the vegetation removed by the Project and monitored to assure successful revegetation. After decommissioning, the characteristic landscape would resemble the existing conditions. However, due to the slow pace of natural desert ecology, it would likely take decades after decommissioning for the landscape to resemble the existing conditions. From the KOPs, the degree of contrast would be weak because decommissioning would leave the landscape in a condition that does not attract attention.

Local Plans, Policies, and Regulations

Decommissioning would remove the buildings, structures, and activities that do not meet Riverside County General Plan policies. Therefore, there would be no buildings, structures, and activities at the site that would violate Riverside County General Plan policies.

Gen-Tie Line A-1

Interim Visual Management Class

Varying views of GT-A-1 are available from KOPs 1, 2, 3, 4, 5, and 6. Decommissioning would be visible from these KOPs. Removal of artificial structures would return the developed site to an undeveloped site. Decommissioning would return natural form and contours to the landscape. It would reestablish native vegetation and natural habitat, such as rocks or logs, to the land. The vegetation would be reestablished to resemble the form and line of the vegetation removed by the Project and monitored to assure successful revegetation. After decommissioning, the characteristic landscape would resemble the existing conditions. However, due to the slow pace of natural desert ecology, it would likely take decades after decommissioning for the landscape to resemble the existing conditions. From the KOPs, the degree of contrast would be weak because decommissioning would leave the landscape in a condition that does not attract attention.

Local Plans, Policies, and Regulations

Decommissioning would remove the buildings, structures, and activities that do not meet Riverside County General Plan policies. Therefore, there would be no buildings, structures, and activities at the site that would violate Riverside County General Plan policies.

Red Bluff Substation A

Interim Visual Management Class

Views of Red Bluff Substation A are available from KOP 6. Decommissioning would be visible from this KOP. Removal of artificial structures would return the developed site to an undeveloped site. Decommissioning would return natural form and contours to the landscape. It would reestablish native vegetation and natural habitat, such as rocks or logs, to the land. The vegetation would be reestablished to resemble the form and line of the vegetation removed by the Project and monitored to assure successful revegetation. After decommissioning, the characteristic landscape would resemble the existing conditions. However, due to the slow pace of natural desert ecology, it would likely take decades after decommissioning for the landscape to resemble the existing conditions. From the KOP, the degree of contrast would be weak because decommissioning activities would leave the landscape in a condition that does not attract attention.

Local Plans, Policies, and Regulations

Decommissioning would remove the buildings, structures, and activities that do not meet Riverside County General Plan policies. Therefore, there would be no buildings, structures, and activities at the site that would violate Riverside County General Plan policies.

Summary of Decommissioning Impacts

Decommissioning of SF-B, GT-A-1, and Red Bluff Substation A would result in rehabilitating 4,390.57 acres. As described above, impacts from decommissioning would be visible. The changes to the characteristic landscape from decommissioning would restore the natural visual resources to the landscape. This would not occur until the end of the Project lifespan, which could be greater than 50 years. However, due to the slow pace of natural desert ecology, it would likely take decades after decommissioning for the landscape to resemble the existing conditions. The level of change to the characteristic landscape would comply with interim visual management Class II and III objectives, because changes to the characteristic landscape can be either low or moderate. Decommissioning activities would leave the landscape in a condition that does not attract attention.

Decommissioning would remove the buildings, structures, and activities that do not comply with Riverside County General Plan policies.

Summary of Combined Impacts for Alternative 1

There would be long-term impacts from construction, operation, and maintenance. Construction, operation, and maintenance of SF-B, GT-A-1, and Red Bluff Substation A would result in the temporary disturbance of 123.79 acres and the permanent disturbance of 4,390.57 acres. Impacts from construction, operation, and maintenance would be visible. During construction, operation, and maintenance, due to the proximity of KOPs 3, 4, and 6 to Project components, the degree of contrast would not comply with interim visual management Class II and III objectives. During construction, operation, and maintenance, the degree of contrast from KOPs 1, 2, and 5 would comply with interim visual management Class II and III objectives. The degree of contrast from all of the KOPs during decommissioning would comply with interim visual management Class II and III objectives. The level of change to the characteristic landscape would be reduced with the implementation of Mitigation MM-VR-1 through MM-VR-6, described below under Applicant Measures and Mitigation Measures.

Local plans, policies, and regulations do not address visual resources during temporary construction. The size, composition, style, color, and location of Project components during operation and maintenance are incompatible with Riverside County General Plan policies. Because of the operation and maintenance impacts described above, the Project would not comply 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. Decommissioning would remove the buildings, structures, and activities that do not comply with Riverside County General Plan policies.

Applicant Measures and Mitigation Measures

Mitigation measures to reduce impacts on visual resources are listed below.

Mitigation MM-VR-1: Revegetation. The Applicant and SCE shall minimize the amount of ground surface to be disturbed and 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 VRM specialist. Spoils and topsoil shall be stockpiled in disturbed areas approved by the Designated Biologist. Parking areas, staging and disposal site locations similarly shall be located in areas approved by the Designated Biologist and VRM specialists. All disturbances, Project vehicles and equipment shall be confined to the flagged areas. Vegetation along roadways and boundaries of other disturbed areas shall be scalloped and feathered to reduce the hard line visual impact, especially as seen from Kaiser Road and SR 177.
- Minimize Road Impacts. New and existing roads that are planned for construction, widening, or other improvements shall not extend beyond the minimum necessary and flagged as described above. All vehicles passing or turning around shall do so within the planned impact area 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., flagged or staked) before the onset of construction.
- Revegetation of Temporarily Disturbed Areas. The Applicant and SCE shall prepare and implement a revegetation plan to restore all areas subject to temporary disturbance to pre-Project grade and conditions. Temporarily disturbed areas within the Project area include all proposed locations for linear facilities, temporary access roads, construction work temporary lay-down areas, and construction equipment staging areas. The revegetation plan shall include a description of topsoil salvage and seeding techniques and a monitoring and reporting plan and shall identify performance standards. Cactus and yucca shall be salvaged and transplanted out of harm's way but still within ROWs.

No less than 30 days following the publication of the BLM's Record of Decision/ROW Issuance, whichever comes first, the Applicant and SCE shall submit to the BLM a final agency-approved revegetation plan that has been reviewed and approved by the BLM.

Within 30 days after completion of Project construction, the Applicant and SCE each shall provide to the BLM for review and approval a written report identifying which items of the revegetation plan have been completed, a summary of all modifications to mitigation measures made during the Project's construction phase, and which items are still outstanding. It shall also include a plan for revegetation monitoring.

Mitigation MM-VR-2: Litter and Trash Control. During construction, all trash and food-related waste shall be placed in self-closing containers and removed daily from the site. 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.

Mitigation MM-VR-3: Fugitive Dust Control. The speed limit when traveling on dirt access routes shall not exceed 25 miles per hour and shall be incorporated into the Fugitive Dust Control Plan. BLM-approved dust suppressant shall be used to control fugitive dust.

Mitigation MM-VR-4: Lighting Control. Consistent with safety and security considerations, the Applicant and SCE 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); d) illumination of the Project and its immediate vicinity shall be minimized; and e) the plan shall comply with local policies and ordinances. The Applicant and SCE each shall submit to the BLM for review and approval a lighting mitigation plan that includes the following:

- Location and direction of light fixtures shall take the lighting mitigation requirements into account;
- Lighting design shall consider setbacks of Project features from the site boundary to help satisfy the lighting mitigation requirements;
- Light fixtures that are visible from beyond the Project boundary shall have cutoff angles sufficient to prevent lamps and reflectors from being visible beyond the Project boundary, except where necessary for security;
- Motion sensors shall be used, especially for security lighting; and
- Surfaces shall be treated to minimize glare.

Mitigation MM-VR-5: Surface Treatment of Project Structures/Buildings. The Applicant and SCE 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 transmission line conductors shall be non-specula and nonreflective, and the insulators shall be nonreflective and nonrefractive. The Applicant and SCE shall comply with BLM requirements regarding appropriate surface treatments for Project elements.

Mitigation MM-VR-6: Project Design. The Applicant and SCE 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 MM-VR-5) and texture of the landscape; and reduction of unnecessary disturbance. 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 size of cuts and fills.
- Vegetation Manipulation: Retain as much of the existing vegetation as possible. Use existing vegetation to screen the development from public viewing. Use scalloped, irregular cleared

edges to reduce line contrast. Use irregular clearing shapes to reduce form contrast. Feather and thin the edges of cleared areas and retain a representative mix of plant species and sizes.

- Structures: Minimize the number of structures and combine different activities in one structure. 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 land forms 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: Reduce the amount of disturbed area and blend the disturbed areas into the characteristic landscape. Replace soil, brush, rocks, and natural debris over disturbed area. Newly introduce plant species shall be of a form, color, and texture that blends with the landscape.

The Applicant and SCE and BLM shall develop a set of visual resources BMPs to serve as a running list of proven practices to reduce the overall visual contrast of the proposed Project.

CEQA Significance Determination

Impacts pertaining to CEQA significance criteria VR-1, VR-2, and VR-3 are described below. KOPs 1, 2, 3, 4, and 6 provide general scenic vistas across the landscape. KOPs 3, 4, 5, and 6 provide views of the visual character/quality (local setting), depending on the Project component. CEQA significance determination is applicable to non-BLM land.

Solar Farm Layout B

CEQA significance criteria are not addressed because SF-B is on BLM land.

Gen-Tie Line A-1

Impact VR-1: General Scenic Vistas

Construction. General scenic vistas involving GT-A-1 construction are available from KOPs 1, 2, 3, 4, and 6. Impacts from construction,, equipment, and vehicles would be visible from these KOPs. Impacts are similar to those described above under Interim Visual Management Class for construction of SF-B. However, GT-A-1 would disturb a substantially smaller area (see Table 4.16-1) and would be constructed in less time. The degree of contrast would result in less than significant impacts to less than significant impacts with mitigation incorporated. The intensity of adverse impacts would not be significant and unavoidable because GT-A-1 would occur on approximately 0.6 mile of land owned in fee by MWD. The intensity of adverse short-term construction impacts would be reduced to less than significant with the implementation of Mitigation MM-VR-1 through MM-VR-3, described above under Applicant Measures and Mitigation Measures.

Operation and Maintenance. General scenic vistas involving GT-A-1 operation and maintenance are available from KOPs 1, 2, 3, 4, and 6. Impacts from operation and maintenance would be visible from these KOPs. Impacts are described above under Interim Visual Management Class for operation and maintenance of GT-A-1. Although GT-A-1 is in the foreground-middle ground distance zone for these KOPs, the KOPs are not all the same distance from GT-A-1. Therefore, the degree of contrast varies, depending on the exact location of the KOP. For KOPs 3, 4, and 6, the degree of contrast would result in significant and unavoidable impacts. Due to distance, however, the degree of contrast would result in less than significant impacts to less than significant impacts with mitigation incorporated for KOPs 1 and 2. The intensity of adverse long-term operation and maintenance impacts would be reduced to less than significant with the implementation of Mitigation MM-VR-5 and MM-VR-6, described above under Applicant Measures and Mitigation Measures for KOPs 1 and 2. This is because GT-A-1 would occur on approximately 0.6 mile of land owned in fee by MWD.

Decommissioning. The intensity of adverse long-term decommissioning impacts would be less than significant. At a minimum, decommissioning is expected to restore the landscape to pre-disturbance conditions.

Impact VR-2: Local Setting

Construction. Views of the local setting involving GT-A-1 construction are available from KOPs 3, 4, 5 and 6. Impacts from construction activities, equipment, and vehicles would be visible from these KOPs. Impacts are similar to those described above under Interim Visual Management Class for construction of SF-B. However, GT-A-1 would disturb a substantially smaller area (see Table 4.16-1) and would be constructed in less time. The degree of contrast would result in less than significant impacts to less than significant impacts with mitigation incorporated. The intensity of adverse impacts would not be significant and unavoidable because GT-A-1 would occur on approximately 0.6 mile of land owned in fee by MWD. The intensity of adverse short-term construction impacts would be reduced to less than significant with the implementation of Mitigation MM-VR-1 through MM-VR-3, described above under Applicant Measures and Mitigation Measures.

Operation and Maintenance. Views of the local setting involving GT-A-1 operation and maintenance are available from KOPs 3, 4, 5 and 6. Impacts from operation and maintenance would be visible from these KOPs. Impacts are described above under Interim Visual Management Class for operation and maintenance of GT-A-1. Although GT-A-1 is in the foreground-middle ground distance zone for these KOPs, the KOPs are not all the same distance from GT-A-1. Therefore, the degree of contrast varies, depending on the exact location of the KOP. For KOPs 3 and 6, the degree of contrast would result in significant and unavoidable impacts. However, due to distance and the presence of similar linear elements (such as roads and transmission lines), the degree of contrast would result in less than significant impacts to less than significant impacts with mitigation incorporated for KOPs 4 and 5. The intensity of adverse long-term operation and maintenance impacts would be reduced to less than significant with the implementation of Mitigation MM-VR-5 and MM-VR-6, described above under Applicant Measures and Mitigation Measures for KOPs 4 and 5.

Decommissioning. The intensity of adverse long-term decommissioning impacts would be less than significant. At a minimum, decommissioning is expected to restore the landscape to predisturbance conditions.

Impact VR-3: Light and Glare

Construction. Views of light and glare involving GT-A-1 construction are available from KOPs 1, 2, 3, 4, 5, and 6. Impacts from construction activities, equipment, and vehicles would be visible from these KOPs. Impacts are similar to those described above under Interim Visual Management Class for construction of SF-B. However, GT-A-1 would disturb a substantially smaller area (see Table 4.16-1) and would be constructed in less time. The degree of contrast would result in less than significant impacts. The intensity of adverse impacts would not be significant and unavoidable because GT-A-1 would occur on approximately 0.6 mile of land owned in fee by MWD.

Operation and Maintenance. The intensity of adverse long-term operation and maintenance impacts would be less than significant at KOPs 1, 2, 3, 4, 5, and 6. GT-A-1 would not contain sources of light. Also, the monopoles would be composed of self-weathering steel, thereby reducing glare.

Decommissioning. The intensity of adverse long-term decommissioning impacts would be less than significant. At a minimum, decommissioning is expected to restore the landscape to predisturbance conditions.

Red Bluff Substation A

Impact VR-1: General Scenic Vistas

Construction. General scenic vistas involving Red Bluff Substation A construction are available from KOP 6. Impacts from construction activities, equipment, and vehicles would be visible from this KOP. Impacts are similar to those described above under Interim Visual Management Class for construction of SF-B. However, Red Bluff Substation A would disturb a substantially smaller area (see Table 4.16-1) and would be constructed in less time. Due to the KOP proximity, the lack of screening elements to block direct views of the Project and the height and number of artificial structures, the degree of contrast would be significant and unavoidable. Although viewers typically expect artificial elements next to highways, they also expect the elements to be clustered instead of spread across the landscape. The intensity of adverse short-term construction impacts would be reduced to less than significant with the implementation of Mitigation MM-VR-1 through MM-VR-3, described above under Applicant Measures and Mitigation Measures.

Operation and Maintenance. General scenic vistas involving Red Bluff Substation A operation and maintenance are available from KOP 6. Impacts from operation and maintenance would be visible from this KOP. Impacts are described above under Interim Visual Management Class for operation and maintenance of Red Bluff Substation A. Red Bluff Substation A and telecommunication facilities are in the foreground-middle ground distance zone for KOP 6. From KOP 6, the degree of contrast would be significant and unavoidable because of the lack of screening elements to block direct views of the site, the height and number of artificial structures, and the proximity of KOP 6 to the Project. Although viewers typically expect artificial elements next to highways, they also expect elements to be clustered instead of spread across the landscape. Activity on I-10, however, partially distracts views from KOP 6 away from the site. Also, because of the curving nature of I-10 and travelers moving at highway speed, the site would be visible in the foreground distance zone for a limited amount of time. The intensity of adverse long-term operation and maintenance impacts would be reduced (but not to less than significant levels) with the implementation of Mitigation MM-VR-4 through MM-VR-6, described above under Applicant Measures and Mitigation Measures.

Decommissioning. The intensity of adverse long-term decommissioning impacts would be less than significant. At a minimum, decommissioning is expected to restore the landscape to predisturbance conditions.

Impact VR-2: Local Setting

Construction. Views of the local setting involving Red Bluff Substation A construction are available from KOP 6. Impacts from construction activities, equipment, and vehicles would be visible from this KOP. Impacts would be similar to those described above under Interim Visual Management Class for construction of SF-B. However, Red Bluff Substation A would disturb a substantially smaller area (see Table 4.16-1) and would be constructed in less time. Due to the KOP proximity and the lack of screening elements to block direct views of the Project, the degree of contrast would be significant and unavoidable. Although viewers typically expect artificial elements next to highways, they expect the elements to be clustered instead of spread across the landscape. The intensity of adverse short-term construction impacts would be reduced to less than significant with the implementation of Mitigation MM-VR-1 through MM-VR-3, described above under Applicant Measures and Mitigation Measures.

Operation and Maintenance. Views of the local setting involving Red Bluff Substation A operation and maintenance are available from KOP 6. Impacts from operation and maintenance would be visible from this KOP. Impacts are described above under Interim Visual Management Class for operation and maintenance of Red Bluff Substation A. Red Bluff Substation A and telecommunication facilities are in the foreground-middle ground distance zone for KOP 6. From KOP 6, the degree of contrast would be significant and unavoidable because of the lack of screening elements to block direct views of the site, the height and number of artificial structures, and the proximity of KOP 6 to the Project. Although viewers typically expect artificial elements next to highways, they expect the elements to be clustered instead of spread across the landscape. Activity on I-10, however, partially distracts views from KOP 6 away from the site. Also, because of the curving nature of I-10 and travelers moving at highway speed, the site would be visible in the foreground distance zone for a limited amount of time. The intensity of adverse long-term operation and maintenance impacts would be reduced (but not to less than significant levels) with the implementation of Mitigation MM-VR-4 through MM-VR-6, described above under Applicant Measures and Mitigation Measures.

Decommissioning. The intensity of adverse long-term decommissioning impacts would be less than significant. At a minimum, decommissioning is expected to restore the landscape to predisturbance conditions.

Impact VR-3: Light and Glare

Construction. Views of light and glare involving Red Bluff Substation A construction are available from KOP 6. Impacts from construction activities, equipment, and vehicles would be visible from this KOP. Impacts are similar to those described above under Interim Visual Management Class for construction of SF-B. However, Red Bluff Substation A would disturb a substantially smaller area (see Table 4.16-1) and would be constructed in less time. The degree of contrast would result in less than significant impacts. The intensity of adverse impacts would not be significant and unavoidable because adverse impacts would be short-term and limited to the duration of construction activities. Also, certain construction activity impacts, such as material deliveries, are not expected to occur for the duration of the work week or at all on weekends. Furthermore, the work day would be during daylight, typically consisting of one shift beginning at 7:00 am and ending at 3:30 pm.

Operation and Maintenance. Views of light and glare involving Red Bluff Substation A operation and maintenance are available from KOP 6. Impacts from operation and maintenance would be visible from this KOP. Impacts are described above under Interim Visual Management Class for operation and maintenance of Red Bluff Substation A. Red Bluff Substation A and telecommunication facilities are in the foreground-middle ground distance zone for KOP 6. From KOP 6, the degree of contrast would be significant and unavoidable because of the lack of screening elements to block direct views of the site, the height and number of artificial structures, and the proximity of KOP 6 to the Project. Although viewers typically expect artificial elements next to highways, they expect the elements to be clustered instead of spread across the landscape. Activity on I-10, however, partially distracts views from KOP 6 away from the site. Also, because of the curving nature of I-10 and travelers moving at highway speed, the site would be visible in the foreground distance zone for a limited amount of time. The intensity of adverse long-term operation and maintenance impacts would be reduced (but not to less than significant levels) with the implementation of Mitigation MM-VR-4, described above under Applicant Measures and Mitigation Measures.

Decommissioning. The intensity of adverse long-term decommissioning impacts would be less than significant. At a minimum, decommissioning is expected to restore the landscape to predisturbance conditions.

Unavoidable Adverse Effects

There would be long-term significant and unavoidable adverse impacts on scenic vistas, visual character/quality (local setting, artificial light, and local plans, policies, and regulations. Based on the locations of the KOPs used in this analysis, long-term significant and unavoidable adverse impacts on scenic vistas and the local setting would result from GT-A-1 and Red Bluff Substation A, and long-term significant and unavoidable adverse impacts on artificial light would result from the Red Bluff Substation A.

Alternative 1 is incompatible with Riverside County General Plan policies. Because of operation and maintenance impacts, Alternative 1 would not comply 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.

4.16.4 Alternative 2 – Alternate Action

The following configurations of the three Project components are proposed:

- Solar Farm Layout B (SF-B);
- Gen-Tie Line B-2 (GT-B-2); and
- Red Bluff Substation B.

Figure 4.16-9 shows the viewshed for Alternative 2. It shows the areas within 15 miles of Alternative 2 from which Alternative 2 buildings and structures would be visible. The analysis below identifies the impacts on visual resources from KOPs within the viewshed.

Construction

Solar Farm Layout B

Construction of SF-B would require clearance of approximately 4,245 acres. The impacts resulting from constructing SF-B would be the same as those discussed under Alternative 1.

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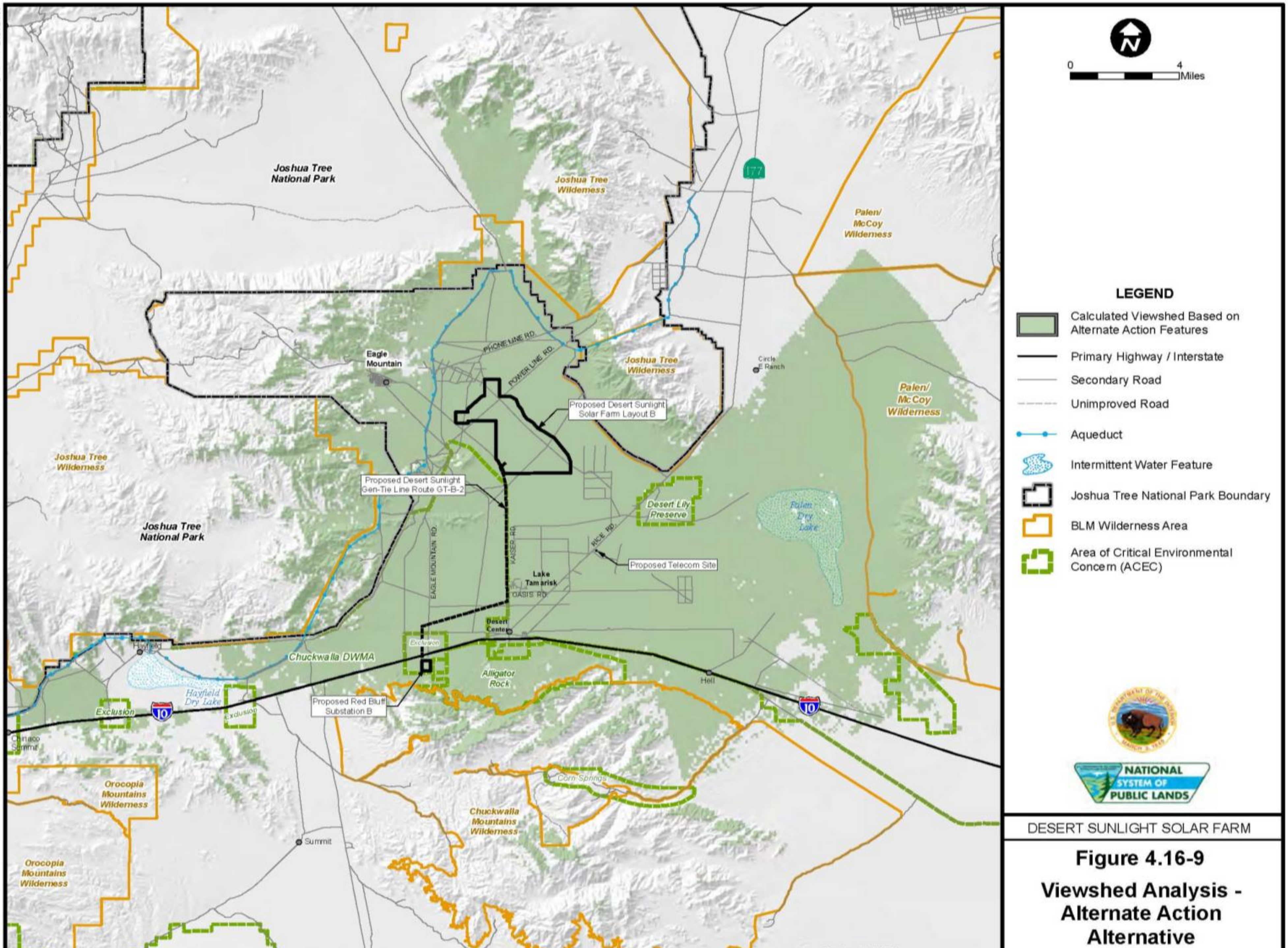


Figure 4.16-9

Viewshed Analysis - Alternate Action Alternative

Gen-Tie Line B-2

Construction for GT-B-2 along the 10-mile by 160-foot wide transmission corridor would result in the temporary disturbance of 67 acres and the permanent disturbance of 11 acres. The impacts resulting from constructing GT-B-2 would be similar to those discussed under GT-A-1 for Alternative 1. However, because GT-B-2 would disturb a smaller area, there would be fewer impacts (see Table 4.16-1). For example, because a smaller area would be disturbed, there would be less fugitive dust, material deliveries to the Project site, and construction equipment and vehicles that could diminish visual resources. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

Red Bluff Substation B

Construction of Red Bluff Substation B includes the substation itself and related components. It would result in 89.56 acres of permanent disturbance and 28.63 acres of temporary disturbance. Although there are no KOPs for Red Bluff Substation B, the impacts resulting from constructing Red Bluff Substation B would be similar to those discussed under Red Bluff Substation A for Alternative 1. Although the substations are in different locations, they are in similar settings and are composed of similar Project components. However, because Red Bluff Substation B would disturb a smaller area, there would be fewer impacts (see Table 4.16-1). For example, because a smaller area would be disturbed, there would be less fugitive dust, material deliveries to the Project site, and construction equipment and vehicles that could diminish visual resources. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

Summary of Construction Impacts

Construction of SF-B, GT-B-2, and Red Bluff Substation B would result in the temporary disturbance of 95.63 acres and the permanent disturbance of 4,345.56 acres. As described above, impacts from construction activities, equipment, and vehicles would be visible. The impacts on interim visual management class objectives resulting from construction would be similar to those discussed under Alternative 1. However, because a smaller total area would be disturbed, there would be fewer impacts. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone. The mitigation would be the same as those discussed under Alternative 1.

Operation and Maintenance

Solar Farm Layout B

SF-B would occupy approximately 4,245 acres. The impacts resulting from operating and maintaining SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

Operation and maintenance for GT-B-2 would result in the permanent disturbance of 11 acres. Approximately 58 transmission structures would be required for this alternative, including 53 tangents and 5 dead-ends. There would be 4.3 miles of access roads that are 14 feet wide. The impacts resulting from operating and maintaining GT-B-2 would be similar to those discussed under

GT-A-1 for Alternative 1. However, because GT-B-2 would disturb a smaller area, there would be fewer impacts (see Table 4.16-1). For example, because a smaller area would be disturbed, there would be fewer artificial vertical elements connected by discrete wires across the relatively flat landscape. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

Red Bluff Substation B

Red Bluff Substation B operation and maintenance includes the substation and related components. It would result in 89.56 acres of permanent disturbance. Although there are no KOPs for Red Bluff Substation B, the impacts resulting from operating and maintaining Red Bluff Substation B would be similar to those discussed under Red Bluff Substation A for Alternative 1. Although the substations are in different locations, they are in similar settings and are composed of similar Project components. However, because Red Bluff Substation B would disturb a smaller area, there would be fewer impacts (see Table 4.16-1). For example, because a smaller area would be disturbed, there would be less access road that would abruptly divide the landscape, vegetation clearing, and alteration of the natural lines of the topography. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

Summary of Operation and Maintenance Impacts

Operating and maintaining of SF-B, GT-B-2, and Red Bluff Substation B would result in the permanent disturbance of 4,345.56 acres. As described above, impacts from operation and maintenance would be visible. The impacts on interim visual management class objectives resulting from operation and maintenance would be similar to those discussed under Alternative 1. However, because a smaller total area would be disturbed, there would be fewer impacts. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone. The mitigation measures are the same as those discussed under Alternative 1.

Decommissioning

The Project has a minimum expected lifetime of 25 years or more, with an opportunity for a lifetime of 50 years or more with equipment replacement and repowering. Decommissioning of facilities is detailed in Chapter 2.

Solar Farm Layout B

The impacts resulting from decommissioning SF-B would be the same as those discussed under Alternative 1. However, because a smaller area would be decommissioned, there would be fewer impacts. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

Gen-Tie Line B-2

The impacts resulting from decommissioning GT-B-2 would be similar to those discussed under Alternative 1. However, because a smaller area would be decommissioned, there would be fewer impacts. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

Red Bluff Substation B

The impacts resulting from decommissioning Red Bluff Substation B would be similar to those discussed under Alternative 1. Although the substations are in different locations, they are in similar settings and are composed of similar Project components. However, because a smaller area would be decommissioned, there would be fewer impacts. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

Summary of Decommissioning Impacts

Decommissioning of SF-B, GT-B-2, and Red Bluff Substation B would result in rehabilitating approximately 4,345.56 acres. The impacts on interim visual management class objectives resulting from decommissioning are similar to those discussed under Alternative 1. However, because a smaller total area would be decommissioned, there would be fewer impacts. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

Summary of Combined Impacts for Alternative 2

There would be long-term impacts from construction, operation, and maintenance. Construction, operation, and maintenance of SF-B, GT-B-2, and Red Bluff Substation B would result in the temporary disturbance of 95.63 acres and the permanent disturbance of 4,345.56 acres. There would be long-term impacts from decommissioning. At a minimum, decommissioning is expected to restore the landscape to pre-disturbance conditions.

The impacts on interim visual management class objectives are similar to those discussed under Alternative 1. However, because a smaller total area would be disturbed, there would be fewer impacts. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

The impacts on local plans, policies, and regulations are similar to those discussed under Alternative 1. However, because a smaller total area would be disturbed, there would be fewer impacts.

Applicant Measures and Mitigation Measures

The mitigation is the same as that discussed under Alternative 1.

CEQA Significance Determination

Solar Farm Layout B

CEQA significance criteria are not addressed because SF-B is on BLM land.

Gen-Tie Line B-2

The CEQA significance determination for GT-B-2 is the same as that discussed under Alternative 1.

Red Bluff Substation B

The CEQA significance determination for Red Bluff Substation B is the same as that discussed under Alternative 1.

Unavoidable Adverse Effects

The unavoidable adverse impacts are the same as those discussed under Alternative 1.

4.16.5 Alternative 3 – Reduced Footprint Alternative

The following configurations of the three Project components are proposed:

- Solar Farm Layout C (SF-C);
- Gen-Tie Line A-2 (GT-A-2); and
- Red Bluff Substation A, with Access Road 1.

Figure 4.16-10 shows the areas within 15 miles of Alternative 3, from which Alternative 3 buildings and structures would be visible. The analysis below identifies the impacts on visual resources from KOPs within the viewshed.

Construction

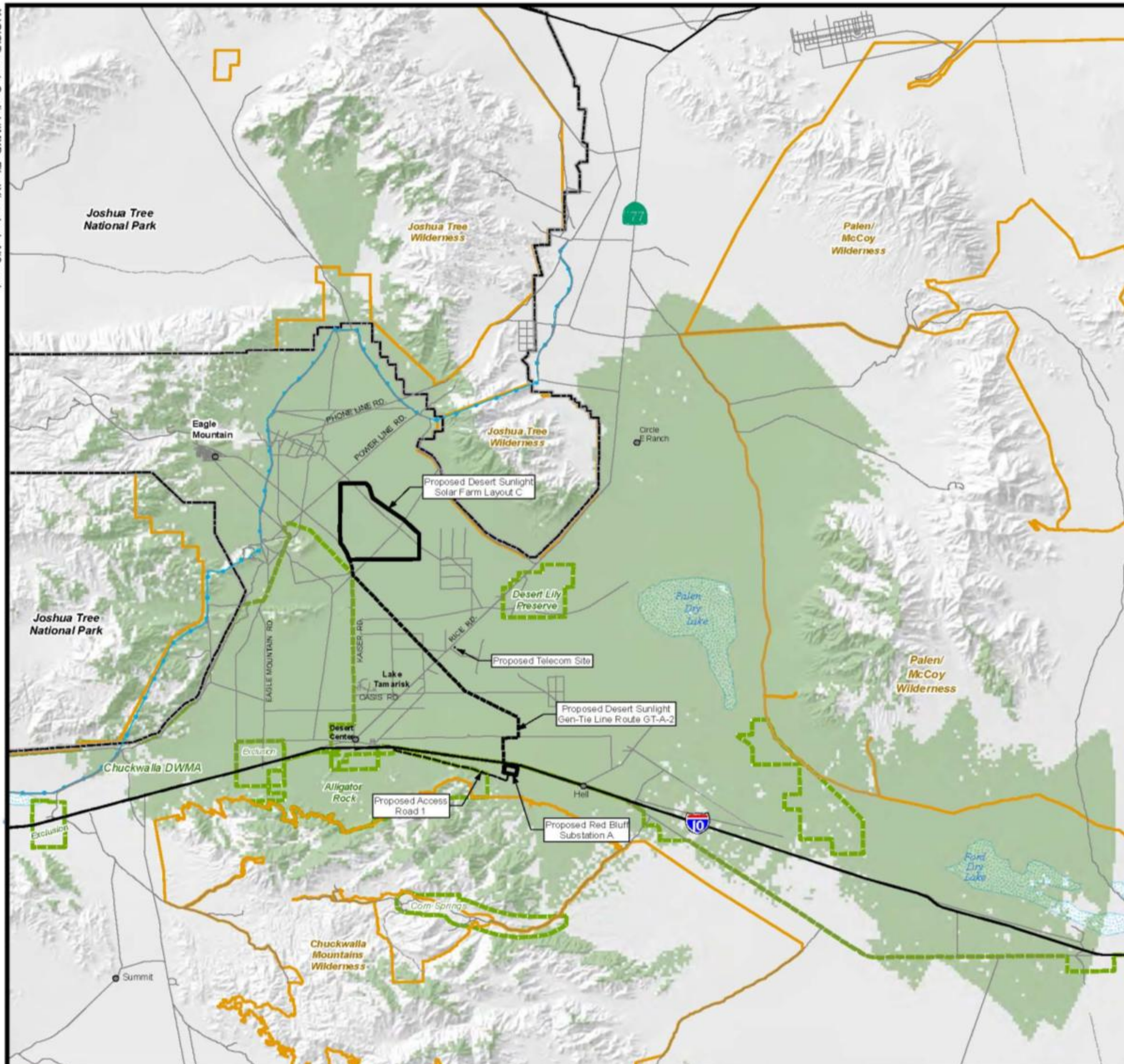
Solar Farm Layout C

Construction of SF-C would require clearance of approximately 3,045 acres. The impacts resulting from constructing SF-C are similar to those discussed under SF-B for Alternative 1. However, because SF-C would disturb a smaller area, there would be fewer impacts (see Table 4.16-1). For example, because a smaller area would be disturbed, there would be less fugitive dust, material deliveries to the Project site, and construction equipment and vehicles that could diminish visual resources. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

Gen-Tie Line A-2

Construction for GT-A-2 along the 10-mile by 160-foot wide transmission corridor would result in the temporary disturbance of 75 acres and the permanent disturbance of 23 acres. The impacts resulting from constructing GT-A-2 are similar to those discussed under GT-A-1 for Alternative 1. However, because GT-A-2 construction would disturb a smaller area, there would be fewer temporary impacts (see Table 4.16-1). For example, because a smaller area would be disturbed, there would be less fugitive dust, material deliveries to the Project site, and construction equipment and vehicles that could diminish visual resources. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

X:\GIS\Desert_Sunlight\MXD_Files\Viewshed_Alt3.mxd



0 4 Miles

LEGEND

- Calculated Viewshed Based on Reduced Footprint Features
- Primary Highway / Interstate
- Secondary Road
- Unimproved Road
- Aqueduct
- Intermittent Water Feature
- Joshua Tree National Park Boundary
- BLM Wilderness Area
- Area of Critical Environmental Concern (ACEC)

NATIONAL SYSTEM OF PUBLIC LANDS

DESERT SUNLIGHT SOLAR FARM

Figure 4.16-10

Viewshed Analysis - Reduced Footprint Alternative

Red Bluff Substation A

Construction of Red Bluff Substation A includes the substation itself and related components. It would result in 127.57 acres of permanent disturbance and 37.79 acres of temporary disturbance. The impacts resulting from constructing Red Bluff Substation A (with Access Road 1) are similar to those discussed under Red Bluff Substation A for Alternative 1.

Summary of Construction Impacts

Construction of SF-C, GT-A-2, and Red Bluff Substation A (with Access Road 1) would result in the temporary disturbance of 112.79 acres and the permanent disturbance of 3,195.57 acres. As described above, impacts from construction activities, equipment, and vehicles would be visible. The impacts on interim visual management class objectives resulting from construction are similar to those discussed under Alternative 1. However, because a smaller total area would be disturbed, there would be fewer impacts. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone. The mitigation measures are the same as those discussed under Alternative 1.

Operation and Maintenance

Solar Farm Layout C

SF-C would occupy approximately 3,045 acres. The impacts resulting from operating and maintaining SF-C are similar to those discussed under SF-B for Alternative 1. However, because SF-C would disturb a smaller area, there would be fewer impacts (see Table 4.16-1). For example, because a smaller area would be disturbed, there would be fewer artificial and angular forms at the Solar Farm to stand out against the rounded and curving natural forms of the adjacent vegetation and mountains. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

Gen-Tie Line A-2

Operation and maintenance for GT-A-2 would result in the permanent disturbance of 23 acres. Fifty-nine transmission structures would be required for this alternative, including 51 tangents and 8 dead-ends. There would be 10 miles of access roads that are 14 feet wide. The impacts resulting from operating and maintaining GT-A-2 are similar to those discussed under GT-A-1 for Alternative 1. However, because GT-A-2 would disturb a larger area, there would be greater impacts (see Table 4.16-1). For example, because a larger area would be disturbed, there would be more artificial vertical elements connected by discrete wires across the relatively flat landscape. Although there would be more impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

Red Bluff Substation A

Red Bluff Substation A operation and maintenance includes the substation and related components. It would result in 127.57 acres of permanent disturbance. The impacts resulting from operating and maintaining Red Bluff Substation A (with Access Road 1) are similar to those discussed under Red Bluff Substation A for Alternative 1.

Summary of Operation and Maintenance Impacts

Operating and maintaining of SF-C, GT-A-2, and Red Bluff Substation A (with Access Road 1) would result in the permanent disturbance of 3,195.57 acres. As described above, impacts from operation and maintenance would be visible. The impacts on interim visual management class objectives resulting from operation and maintenance are similar to those discussed under Alternative 1. However, because a smaller total area would be disturbed, there would be fewer impacts. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone. The mitigation is the same as those discussed under Alternative 1.

Decommissioning

The Project has a minimum expected lifetime of 25 years or more, with an opportunity for a lifetime of 50 years or more with equipment replacement and repowering. Decommissioning of facilities is detailed in Chapter 2.

Solar Farm Layout C

The impacts resulting from decommissioning SF-C are similar to those discussed under Alternative 1. However, because a smaller area would be decommissioned, there would be fewer impacts. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

Gen-Tie Line A-2

The impacts resulting from decommissioning GT-A-2 would be similar to those discussed under Alternative 1. However, because a larger area would be decommissioned, there would be greater impacts. Although there would be more impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

Red Bluff Substation A

The impacts resulting from decommissioning Red Bluff Substation A (with Access Road 1) are similar to those discussed under Alternative 1. However, because a larger area would be decommissioned, there would be greater impacts. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

Summary of Decommissioning Impacts

Decommissioning SF-C, GT-A-2 and Red Bluff Substation A (with Access Road 1) would rehabilitate 3,195.57 acres. The impacts on interim visual management class objectives resulting from decommissioning would be similar to those discussed under Alternative 1. However, because a smaller total area would be decommissioned, there would be fewer impacts. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

Summary of Combined Impacts for Alternative 3

There would be long-term impacts from construction, operation, and maintenance. Construction, operation, and maintenance of SF-C, GT-A-2, and Red Bluff Substation A (with Access Road 1) would result in the temporary disturbance of 112.79 acres and the permanent disturbance of 3,195.57 acres. There would be long-term impacts from decommissioning. At a minimum, decommissioning is expected to restore the landscape to pre-disturbance conditions.

The impacts on interim visual management class objectives are similar to those discussed under Alternative 1. However, because a smaller total area would be disturbed, there would be fewer impacts. Although there would be fewer impacts, the intensity of impacts would not change because of the Project's prominence in the foreground-middle ground distance zone.

The impacts on local plans, policies, and regulations are similar to those discussed under Alternative 1. However, because a smaller total area would be disturbed, there would be fewer impacts.

Applicant Measures and Mitigation Measures

The mitigation is the same as that discussed under Alternative 1.

CEQA Significance Determination

Solar Farm Layout C

CEQA significance criteria are not addressed because SF-C is on BLM land.

Gen-Tie Line A-2

The CEQA significance determination for GT-A-2 is the same as that discussed under Alternative 1.

Red Bluff Substation A

The CEQA significance determination for Red Bluff Substation A is the same as that discussed under Alternative 1.

Unavoidable Adverse Effects

The unavoidable adverse impacts are the same as those discussed under Alternative 1.

4.16.6 Alternative 4—No Issuance of a Right-of-Way Grant and No Land Use Plan Amendment (No Action)

Under this alternative, the proposed Desert Sunlight Solar Farm Project would not be approved by the BLM, and the BLM would not amend the CDCA Plan. As a result, no Project components would be constructed, and the BLM would continue to manage its land consistent with existing land use designations. Alternative 1 would have no impact on visual resources and would comply with applicable local plans, policies, and regulations.

Because there would be no amendment to the CDCA Plan and no Project components approved for the site under this alternative, it is expected that the land would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site. As a result, the views of the land are not expected to change noticeably from existing conditions under this alternative, so this No Action Alternative would not result in adverse impacts on visual resources at this location. However, the land on which the Project is proposed would be available to those facilities identified in the existing CDCA Plan, as well as those that may be considered through the plan amendment process. In addition, in the absence of this Project, other renewable energy projects may be constructed to meet state and federal mandates. Project impacts from another renewable energy project would likely be similar to those from the proposed Project.

4.16.7 Alternative 5—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Unsuitable for Solar Energy Development (No Action with Plan Amendment)

Under this alternative, the proposed Desert Sunlight Solar Farm Project would not be approved by the BLM, and the BLM would amend the CDCA Plan to make the Project Study Area unavailable for future solar energy development. As a result, no solar energy project would be constructed on the Project site, and the BLM would continue to manage the site consistent with existing land use designations. Alternative 2 would have no impact on visual resources and would comply with applicable local plans, policies, and regulations.

Because the CDCA Plan would be amended so no solar energy projects could be 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. However, in the absence of the proposed Desert Sunlight Solar Farm Project, other non-solar energy projects (e.g., mining, recreation, utilities, and other energy development) may be constructed. Details regarding these potential non-solar energy projects would be speculative. The views of the site are not expected to change noticeably from existing conditions under this alternative and, therefore, this No Action Alternative would not result in adverse impacts on visual resources at this location.

4.16.8 Alternative 6—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Suitable for Solar Development (No Action with Plan Amendment)

Under this alternative, the proposed Desert Sunlight Solar Farm Project would not be approved by the BLM, and the BLM would amend the CDCA Plan to allow for other solar projects on the site. As a result, it is possible that another solar energy project could be constructed in the Project Study Area.

Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. As a result, impacts would result from the construction and operation of the solar technology and would likely be similar to the impacts from the proposed Project. Different solar technologies require different amounts of grading and maintenance; however, it is expected that all the technologies would require some grading and maintenance. The benefits of the proposed Project in displacing fossil fuel-fired generation, and reducing associated pollutant emissions could occur with a different solar technology at this site and therefore with this alternative. As such, this No Action Alternative would result in impacts similar to those under the proposed Project, which is described above.

4.16.9 Cumulative Impacts

Geographic Extent

The ROI for visual resources is defined as the viewshed, an area seen from a particular location to the visible horizon. Delineation of the viewshed from the proposed Project location must extend from the top elevation of all of the proposed facilities rising at the Project location, expanded to 5.5 feet above the ground of the visible horizon. Due to mountains surrounding the proposed Project site, the viewshed is generally less than 15 miles from the proposed Project to mountain ridgelines. For analyzing cumulative impacts on visual resources, the ROI is expanded to include a larger area. The ROI for the cumulative impact analysis is approximately 15 miles on both sides of the I-10 corridor.

Existing Cumulative Conditions

This discussion identifies past and present (ongoing) activities near the proposed Project site that have contributed to the cumulative conditions for visual resources. The natural landscape has been altered by Eagle Mountain Pumping Plant, Kaiser Mine, and West-wide Section 368 Energy Corridors. These projects are shown on Figure 3.18-2 and are described in Tables 3.18-2 and 3.18-3. These projects directly introduced artificial infrastructure, buildings, structures, and light to the natural landscape of the Chuckwalla Valley.

Eagle Mountain Pumping Plant primarily involves a site-specific building. West-wide Section 368 Energy Corridors primarily involves transmission lines traversing through the landscape. The former Eagle Mountain Mine operation was on approximately 3,800 acres. Although there are mine operation buildings and structures, most of the alterations to the landscape are associated with the topography and mountain landforms. The moderately developed area of the mine covers approximately 320 acres.

Other ongoing activities are residential activities associated with Lake Tamarisk, business activities associated with the Desert Center, recreation (such as sightseeing and off-highway driving) in the valley, and travel along transportation routes. For the most part, these activities are not highly developed or industrialized.

Foreseeable Future Projects

This discussion identifies future foreseeable projects near the proposed Project site that would affect visual resources. Eagle Mountain Pumped Storage Project, Eagle Mountain Landfill Project, Green Energy Express Transmission Line Project, Eagle Mountain Soleil Project, Chuckwalla Valley Raceway, and Chuckwalla Solar I would occur near the Proposed Project site. These projects are shown on Figure 3.18-2 and described in Tables 3.18-2 and 3.18-3. These foreseeable future projects involve visual elements similar to the proposed Project. For example, transmission lines, roads, and industrialized facilities and activities would be found at these foreseeable future projects.

Action Alternatives (Alternatives 1, 2, and 3)

This discussion evaluates the cumulative contribution of the proposed Project impacts, in combination with past, present, and future activities along the I-10 corridor. The Solar Farm, Gen-Tie Line, and Substation would continue to transform the relatively undeveloped valley into a valley with industrial buildings and structures, and operation and maintenance. Alternative 1, for example, would be on 4,390.57 acres, most of which would be densely developed. The incremental effect of altering scenic landscapes, the local setting, and artificial light, when combined with the same effects created by other past projects, ongoing activities, and foreseeable projects would create significant and permanent adverse cumulative impacts because of the increase in the total area of land disturbed by the projects and the increase in the number and density of artificial elements visible. Also, the proposed Project would form a line of visible development from Eagle Mountain across the valley floor toward the southeast where Chuckwalla Valley Raceway and Chuckwalla Solar I would occur.

There is no mitigation that would reduce permanent adverse cumulative impacts to minor or less than significant.

The proposed Project would have significant and permanent adverse impacts on visual resources. Due to their type and location, the future foreseeable projects are expected to have impacts similar to those of the proposed Project; consequently, cumulative adverse impacts on visual resources would be significant and permanent. The cumulative impacts would involve the conversion of natural desert landscapes to landscapes with prominent industrial character (complex industrial forms and lines and surface textures and colors not found in natural desert landscapes). Viewers within the I-10 corridor would witness industrial landscapes and activities that are out of character with the desert landscape. Mitigation (such as MM-VR-1 through MM-VR-6 and other forms of mitigation) to minimize the sprawl of an industrialized landscape along the surface of the I-10 corridor are available to reduce adverse unavoidable cumulative impacts on visual resources.

No Action Alternatives (Alternatives 4, 5, and 6)

There would be no cumulative impacts on visual resources under Alternatives 4, 5, or 6 because there would be no development of the DSSF area and associated facilities. Any future proposals for use of the site would be subject to separate environmental analysis.

4.17 WATER RESOURCES

4.17.1 Methodology for Analysis

Sunlight performed surface water (storm water) and groundwater modeling for the Project Study Area, to analyze potential impacts to water resources from the different project alternatives.

Storm water hydrology studies were performed for Sunlight for SF-A (AECOM 2010a) and SF-B (AECOM 2010b) to evaluate the impacts of the proposed Project facilities on surface water flow, sediment transport, local scour effects, and geomorphology of landforms (both reports are included in Appendix G). The boundaries of the hydrologic model include almost the entire Project Study Area, although detailed two-dimensional modeling was performed primarily in the Solar Farm Layout areas, including the portions of Eagle Creek and Big Wash that cross the Solar Farm Layout areas, and the portion of Pinto Wash that is just east of the Solar Farm Layout areas. Model boundaries are shown in Figure 2 of the storm water hydrology study reports (AECOM 2010a and 2010b; Appendix G). The boundaries and elevations of hydrologic basins for the study were defined using Light Detection and Ranging (LIDAR) topographic survey data and USGS's National Elevation Dataset and EPA's BASINS model.

A two-dimensional model (FLO-2D) was built to simulate flow patterns and sediment transport in the solar farm layout areas, with hydrologic flows for the different storm scenarios estimated using the USACE HEC-HMS model in the areas upgradient and cross-gradient from the FLO-2D model domain. The model was run for the design case (100-year storm: 3.58 inches total rainfall) and the 10-year storm (1.96 inches total rainfall) under multiple scenarios, including existing conditions, construction of SF-B with and without decompaction of soil, and construction of SF-A with and without decompaction of soils. As stated in Chapter 2, the area between PV modules will be decompacted after installation of the modules. A small tractor will decompact the upper 6 inches of soil (approximately) in a strip approximately 9 feet wide in between the PV modules. Therefore the results of the soil decompaction scenarios for the model are discussed in impacts analysis below.

Groundwater flow modeling was performed for Sunlight to evaluate impacts to the Chuckwalla Valley groundwater basin from use of basin groundwater for construction and operations and maintenance water (AECOM 2010d; Appendix G). The regional USGS superposition model for the Colorado River aquifer was used for the groundwater flow modeling (Leake et. al. 2008). This regional model is a two-dimensional model developed using MODFLOW 2000 code. Sunlight's groundwater flow model utilized the Parker-Palo Verde-Cibola area of the regional model.

USGS developed the regional model to assess the effect of groundwater pumping on flow to and from the Colorado River. The following modifications to the regional model were implemented to adapt the model to the purpose of evaluating the impacts of pumping at the scale of the Project (AECOM 2010d; Appendix G):

- USGS's uniform grid spacing of 0.25 miles (1,320 feet) was modified as follows to increase the resolution of the model in the vicinity of the pumping wells:
    - The model grid spacing was set at 30 feet for the first 300 feet around the pumping well.

  - The model grid spacing was set at 100 feet from 300 feet away from the pumping well up to 1 mile from the pumping well.
  - The model grid spacing was gradually increased from 100 feet to 1,320 feet for the remainder of the model domain.
- USGS's uniform transmissivity of 26,000 ft^2/day was varied across the model domain to better reflect the actual distribution of transmissivities within the study area. Sunlight's groundwater flow model divided the model domain into four zones, and the transmissivities assigned to these zones ranged from 1,000 ft^2/day to 26,000 ft^2/day, based upon published data from across the Chuckwalla Valley groundwater basin. Figure 4 in the groundwater modeling report shows the distribution of transmissivities across the model domain (AECOM 2010d; Appendix G). The transmissivity in the vicinity of the Solar Farm (Zone 1 in the model) was varied in multiple model runs from 6,300 ft^2/day to 8,500 ft^2/day.
- USGS's uniform saturated thickness for the aquifer of 500 feet was varied in multiple model runs, from 150 feet to 500 feet, to evaluate sensitivity to different interpretations of saturated thickness.
- USGS's uniform aquifer storage coefficient of 0.2 was varied in multiple model runs from 0.05 to 0.2, to bracket the range of storage coefficients expected across the study area. The lower storage coefficient of 0.05 is consistent with confined conditions, such as are probably present to the east of the study area; while the larger storage coefficient is more representative of an unconfined aquifer, such as is found in the western portion of the basin.

Changes in the default values used for the USGS model were based upon site-specific data and data from across the Chuckwalla Valley groundwater basin. The model provides a conservative estimate of drawdown in the groundwater surface (i.e. overpredicts drawdown) because it assumes there is no recharge to the basin from precipitation or underflow from other groundwater basins, and therefore the only source of groundwater for pumping is from storage in the aquifer or changes in flux from the Colorado River (AECOM 2010d; Appendix G). In reality, as discussed in the Alternative 1 analysis, there is a large amount of recharge to the basin from precipitation and other sources.

Sunlight's model assumed pumping from at a rate of 700 acre-feet per year (AFY) for a 24-month period to simulate the construction period (a slightly conservative, higher rate over a shorter period than the proposed 26-month construction period), and 0.2 AFY for 30 years to simulate the long term operations and maintenance requirements of the Project.

4.17.2 CEQA Significance Criteria

Under CEQA, the proposed Project would have a significant impact on water resources if it would:

WR-1. Violate any water quality standards or waste discharge requirements;

WR-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;

WR-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 that would result in substantial erosion or siltation on- or off-site;

WR-4. Substantially increase the potential for flooding or the amount of damage that could result from flooding;

WR-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;

WR-6. Otherwise substantially degrade water quality;

WR-7. 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;

WR-8. Place within a 100-year flood hazard area structures which would impede or redirect flood flows; or

WR-9. 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, inundation by seiche, tsunami, or mudflow.

4.17.3 Alternative 1 – Proposed Action

Construction

<u>*Solar Farm Layout B*</u>

Groundwater

Construction of Alternative 1 would disturb 4,245 acres, would take approximately 26 months, and would require approximately 1,300 to 1,400 acre-feet (AF) of water, or an average pumping rate of about 600 to 650 AFY. Most of the demand for water during construction is for dust control. Smaller quantities of water are required for compacting soil, mixing concrete, washing equipment, sanitation, and other uses. The peak water demand is estimated at approximately 1.3 million gallons per day (equivalent to an annualized rate of about 1,500 AFY). Project water demand would be met by local groundwater, either from nearby existing wells that are located in the Project Study Area or through a new, temporary well to be constructed closer to the Solar Farm site.

Figure 3.17-4 shows the locations of the proposed new well and the nearby existing wells. Nearby active wells currently have a production capacity of between 800 and 2,200 AFY (First Solar 2009), and these wells would be sufficient to meet Project water demand. Sustainable groundwater yield within the Chuckwalla Valley groundwater basin has been estimated at 10,000 to 20,000 AFY (BLM and CEC 2010). Current groundwater use within the basin is reported to be in the range of 5,000 to 7,000 AFY (Eagle Crest Energy Company 2008).

Groundwater budgets developed for the Chuckwalla Valley groundwater basin for the Palen Solar Power Project Environmental Impact Statement (BLM and CEC 2010), and the Genesis Solar Energy Project (WorleyParsons 2009), are presented in Table 4.17-1. Both groundwater budgets identify recharge from precipitation (mainly from runoff from the surrounding ranges that occurs at the basin margins) as the primary source of inflow to the basin. The primary outflow is from groundwater pumping, which was estimated to be a little over 10,000 AFY. Both studies concluded that there is net inflow into the basin, with the Palen Solar Power Project EIS identifying a net inflow of 2,608 AFY and the groundwater resources investigation for the Genesis Solar Energy Project identifying a net inflow of 3,346 AFY.

Table 4.17-1
Groundwater Budgets for Chuckwalla Valley Groundwater Basin

Groundwater Budget Inputs	Palen Solar Power Project (AFY)[1]	Genesis Solar Power Project (AFY)[2]
INFLOW		
Recharge from precipitation	8,588	9,440
Underflow from Pinto and Orocopia Valley GW Basins	3,500	3,500
Irrigation return flow	800	800
Wastewater return flow	831	831
TOTAL INFLOW (AFY)	13,719	14,571
OUTFLOW		
Groundwater extraction	10,361	10,475
Underflow to Palo Verde Mesa GW basin	400	400
Evapotranspiration at Palen Dry Lake	350	350
TOTAL OUTFLOW (AFY)	11,111	11,225
BUDGET BALANCE (NET INFLOW AFY)	**2,608**	**3,346**

Notes:

1. Groundwater budget data from BLM and CEC, 2010. Staff Assessment and Draft Environmental Impact Statement, Palen Solar Power Project, March 2010.
2. Groundwater budget data from WorleyParsons, 2009. Groundwater Resources Investigation, Genesis Solar Energy Project, Riverside County, California, January 2009.

These data indicate that there is sufficient groundwater available in the Chuckwalla Valley groundwater basin to provide the estimated 600 to 700 AFY needed for construction of Alternative 1 over the estimated 26-month construction period, and that the proposed Project would not deplete groundwater supplies in the basin. The condition in which total inflow exceeds total outflow from the basin implies that basinwide groundwater levels, on average, are rising, although when averaged over the 604,000 acres of Chuckwalla Valley, the average increase in water levels would be on the order of 1/20-inch per year.

Sunlight's groundwater flow model evaluated localized impacts to the groundwater surface from pumping the 700 AFY needed for construction of SF-B. Table 4.17-2 provides a summary of the different model runs, the variation in input parameters for the model runs, estimated drawdown at the pumping well and location of the figure showing the results in the groundwater modeling report in Appendix G.

Table 4.17-2
Desert Sunlight Solar Farm Numerical Groundwater Model Runs
Predicted Drawdown at the Pumping Well

Transmissivity (ft^2/d)	Storage Coefficient	Aquifer Saturated Thickness (ft)	Maximum Predicted Drawdown at Pumping Well (ft)	Results are Shown In
6,300	0.2	500	15.46	Figure 5
8,500	0.2	500	11.89	Figure 6
6,300	0.05	500	17.80	Figure 7
8,500	0.05	500	13.18	Not Shown
6,300	0.2	150	6.78	Figure 8

Table 4.17-2 (continued)
Desert Sunlight Solar Farm Numerical Groundwater Model Runs
Predicted Drawdown at the Pumping Well

Transmissivity (ft^2/d)	Storage Coefficient	Aquifer Saturated Thickness (ft)	Maximum Predicted Drawdown at Pumping Well (ft)	Results are Shown In
8,500	0.2	150	5.24	Not Shown
6,300	0.05	150	6.64	Figure 9
8,500	0.05	150	6.46	Not Shown

Note: Data in this table is taken from Table 1 in "Numerical Groundwater Model Evaluation of Proposed Project Groundwater Pumping, Desert Sunlight Solar Farm, Chuckwalla Valley, Riverside, CA", AECOM, June 2010.

Sunlight's groundwater flow modeling results indicated that drawdown at the pumping well could range from about 5 feet to 17.8 feet, depending on the characteristics of the aquifer. Transmissivity is a measure of the permeability and the saturated thickness of the aquifer. The rate that water can be withdrawn from a well is largely a function of permeability of the aquifer materials. If the permeability is low, then the drawdown in the well has to be higher to achieve the same yield as a well that taps a highly permeable aquifer. Therefore, groundwater modeling was conducted to bracket the range of aquifer conditions expected to occur at the proposed well locations. A cone of depression is created when a well is pumped, as the groundwater in the surrounding aquifer flows toward the pump. Over time, the cone of depression reaches a nearly steady state in response to a steady pumping rate. The steady state cone of depression can be portrayed as a series of groundwater elevation contours, with the greatest decrease in groundwater elevation at the well, and the change in elevation decreasing with distance away from the well. A decline in water levels could potentially have an effect on pumping from adjacent wells by reducing the saturated thickness and requiring the other wells to be pumped harder to maintain the same yield. Under the most extreme assumptions considered in Sunlight's groundwater modeling runs, a drawdown of one foot would occur at a distance of up to approximately one mile from the pumping well (AECOM 2010d, Figure 7; Appendix G). The nearest existing well to the proposed pumping well for the proposed Project is approximately 4,210 feet away, where the drawdown would be slightly more than one foot (AECOM 2010d, Figure 7; Appendix G). Such a small decline in groundwater elevation would have little effect on the cost of pumping the other well, and is within the range of normal fluctuations in groundwater levels. It should be noted that while the groundwater elevation locally within the cone of depression created by pumping the well would decline, the average groundwater elevation in the basin would continue to increase, because net inflow to the basin would continue to be greater than outflow from the basin. (Note that this statement does not take into account other foreseeable projects proposed in the basin that are discussed in the cumulative impacts analysis below).

Data from both the groundwater modeling and the groundwater budgets indicate that pumping groundwater in the Chuckwalla Valley groundwater basin for use during construction of SF-B would not substantially deplete groundwater or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or the water table would be lowered. The total volume of water that would be used (1,400 AF or approximately 650 AFY) over the 26-month construction period is substantially less than the approximately 2,600 to 3,300 AFY of net inflow to the Chuckwalla Valley groundwater basin calculated from the water balance studies performed for the Palen Solar Power Project and the Genesis Solar Energy Project (BLM and CEC 2010; WorleyParsons 2009). Impacts to nearby wells would be low, with projected drawdown in these wells due to pumping for the proposed Project generally less than one foot, with an aquifer saturated thickness of 500 feet. Palen Dry Lake is approximately six miles from the Project Study Area, and Ford Dry Lake is approximately 12 miles from the Project Study Area. Impacts to these water bodies would be negligible, due to their distance from the Project Study Area and the short distance over which the cone of depression from pumping the Sunlight groundwater well dissipates.

As described in Chapter 2, this alternative includes decompacting the soil in the area between the rows of the solar panel arrays after they are installed, in order to increase storm water infiltration and promote vegetation regrowth. Results of storm water modeling performed by Sunlight (discussed in more detail in the Drainage and Surface Water and Flooding subsections) indicated that the total surface water outflow volume from SF-B would increase by 2.5 percent (168 AF) during a 100-year storm without the soil decompaction, and would increase by 1.2 percent (81 AF) during a 100-year storm with the soil decompaction (AECOM 2010b; Appendix G). The small increase in surface runoff under the 100-year storm scenario with or without soil decompaction indicates that SF-B would have only a very small effect on surface water infiltration, and an even smaller impact on groundwater recharge, because all of the surface water that infiltrates into the subsurface does not recharge the aquifer. The surface water modeling demonstrates that construction of SF-B would not interfere with groundwater recharge.

Drainage and Surface Water

During construction to install the solar panels, the ground would be compacted. This would reduce the infiltration capacity of the soil and increase runoff. The panels themselves would cause runoff to fall. Sunlight performed hydrologic, hydraulic, sediment transport and scour analyses of storm water for SF-B under multiple scenarios. One of the scenarios included decompaction of the soil in the area between the solar arrays to restore infiltration rates similar to those prior to construction. Approximately 36 percent of the total SF-B area (approximately 1,534.9 acres) would have the soils decompacted. Results of the modeling for the decompaction scenario indicated the following (AECOM 2010b; Appendix G):

- Peak outflow for existing conditions versus future conditions represented by SF-B would increase by 0.5 percent (116 cubic feet per second [cfs]) for the 100-year storm, and would increase by 1.1 percent (58 cfs) for the 10-year storm.
- Total outflow volume for existing conditions versus future conditions would increase by 1.2 percent (81 AF) for the 100-year storm, and would increase by 2.8 percent (55 AF) for the 10-year storm.
- There was no change in the maximum flow depths for existing conditions versus future conditions for both the 100-year and 10-year storm
- The sediment transport analysis indicated that there was no change in degradation (erosion) of the ground surface for existing conditions versus future conditions under this alternative for both the 10-year and 100-year storms.

Maximum flow depths for this alternative for the 100-year storm with decompaction would be 2.2 feet, and would occur in Pinto Wash, located to the east of SF-B. Maximum flow depths within the footprint of SF-B would be between 1.501 and 2 feet, and occur generally in the wash areas in the center of SF-B (see Figure 3.17-3 and Figure 9 in AECOM 2010b; Appendix G).

The surface water and drainage impacts from construction of SF-B are relatively small. The peak outflow for the modeled area increased by 0.5 percent for the 100-year storm, and 1.1 percent for the 10-year storm. The total outflow increased by 1.2 percent for the 100-year storm and 2.8 percent for the 10-year storm. There was no change in the maximum flow depths or erosion for both the 100-year and 10-year storm. These are all very small changes or no change. The sediment transport modeling demonstrates that construction of SF-B would not substantially alter the existing drainage pattern of the area such that it would result in substantial erosion or siltation on- or off-site. The hydraulic modeling demonstrates that construction of SF-B would not substantially increase the potential for flooding or the amount of damage that could result from flooding, because the change in the flood characteristics between the existing conditions and SF-B is very small. Furthermore, the change in outflow volume is sufficiently small that construction of SF-B would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems.

Sunlight may also implement other mitigation measures to mitigate post-construction impacts such as installing retention basins upstream of SF-B to intercept storm water flows or installing check dams to reduce outflow volume by retaining storm water on site. These measures would reduce the amount of surface flow coming on to the site during storms and increasing residence time of surface water flows on site, thereby reducing flow depths, outflow volumes, and the amount of sediment transport at the Project site, and further minimizing the impacts of Project construction. These and other mitigation measures are discussed in the Applicant Measures and Mitigation Measures section below.

Water Quality

Since there are no permanent water bodies in the Project Study Area and only intermittent surface water flows occur, any impacts on surface water quality would be transient. Surface water could be a mechanism for mobilizing and transporting contaminants beyond the boundaries of the site, and surface water infiltration might, under unusual conditions, transport contaminants to groundwater. Due to the high rate of evaporation, the relatively great depth to groundwater and the presence of clay layers beneath the study area that would impede vertical migration of surface water, the potential for groundwater to be impacted by vertical transport of contaminants to the water table by surface water infiltration is expected to be very low. The potential for water quality impacts would be further reduced by implementation of construction Best Management Practices (BMPs), including minimizing storage and use of chemicals that could cause water quality impacts, good management of chemicals to avoid spills or releases, and swift response to clean up any spills if they occur.

Potential sources of contaminants associated with construction activities include:

- Hazardous substances and petroleum products used in construction;
- Leaching, corrosion, or other releases of chemicals contained in PV equipment; and
- Wastewater.

Hazardous materials such as gasoline and motor fuels and lubricants used for vehicles and mineral oil used for transformers, will be stored or used on site during construction. Table 2.3-8 lists chemicals/petroleum products that would be used during construction. During construction, typical construction wastes, such as wood, concrete and miscellaneous packaging materials would be generated. These wastes will be disposed of in accordance with local, state, and federal regulations.

Sunlight would prepare an SWPPP for the proposed Project that will identify structural and nonstructural BMPs to manage the offsite discharge of storm water from SF-B. Sunlight would coordinate with the Colorado River Basin RWQCB regarding potential coverage under the Construction General Permit for Stormwater Discharge for the proposed Project. Sunlight would prepare a Spill Prevention Control and Countermeasure (SPCC) Plan, as required to address cumulative storage of more than 10,000 gallons of mineral oil in the electrical transformers to be used in the Project. Appropriate spill containment and clean-up kits would be maintained on site during construction, to provide mitigation in the event of a chemical spill.

Potential impacts from chemical spills would be mitigated through development of BMPs, including secondary storage of chemical products, provision of spill containment and clean-up equipment and training of construction personnel in the management of chemicals and use of spill equipment.

The solar arrays are constructed of thin-film cadmium telluride modules mounted on steel racks supported by steel posts. The modules are covered by glass so that the cadmium telluride composition would not be in contact with rain water and would not contribute to surface water contamination.

Sanitary waste generated during the construction phase would be contained and properly disposed by a contractor.

Flooding

The Proposed Project site is located in unincorporated Riverside County, in the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel 06065C2425G. This area has not been mapped by FEMA and, therefore, there are no defined 100-year flood hazard areas at the Proposed Project site, and DOE's Floodplain Environmental Review Requirements, which are outlined in 10 CFR 1022, do not apply to the Proposed Project. The area is classified as Zone D, "areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted by FEMA. Flood insurance rates are commensurate with the uncertainty of the flood risk." As such, this alternative would not 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, and would not place within a FEMA-delineated 100-year flood hazard area structures which would impede or redirect flood flows.

Storm water modeling performed for SF-B and discussed under surface water and drainage indicated that the 100-year storm had the following characteristics (AECOM, 2010b; Appendix G):

- A maximum peak flow depth of 2.2 feet for existing conditions and for SF-B. This flow occurred east of SF-B, in the vicinity of Pinto Wash. The highest flow depths within the SF-B footprint are generally in the area of Big Wash, and are between 1.5 and 2.0 feet.
- An average flow depth of 0.8 feet for both the existing conditions and for SF-B.
- A peak velocity of 5.0 ft/s and an average velocity of 1.9 ft/s for both the existing conditions and for SF-B.

- An increase in outflow volume of 116 AF between the existing conditions and SF-B, an increase of 0.5 percent.

The potential flooding impacts from construction of SF-B are relatively small. The peak outflow for the modeled area increased by 0.5 percent for the 100-year storm, and total outflow increased by 1.2 percent, with no change in the maximum or average peak flow depths. These are all very small changes or no change. The hydraulic modeling demonstrates that construction of SF-B would not substantially increase the potential for flooding or the amount of damage that could result from flooding, because the change in the flood characteristics between the existing conditions and SF-B is very small. Furthermore, construction of SF-B would not 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, inundation by seiche, tsunami, or mudflow, because the Proposed Project site is not near a dam, levee or a coastline.

Gen-Tie Line A-1

Groundwater

The total length of GT-A-1 is 12.2 miles. The Gen-Tie Line would be suspended on steel monopoles that are approximately 120 feet tall. Spacing between the poles would be approximately 900 to 1,100 feet. Construction of this line would require a total of 2,035,000 gallons of water (approximately 6.25 AF of water) over a two-year period. As previously discussed, Project water demand would be met by local groundwater, either from nearby existing wells that are located in the Project Study Area or through a new well to be constructed closer to the Solar Farm site. The groundwater budget analyses performed for the Palen and Genesis solar energy projects indicated a net inflow of groundwater into the Chuckwalla Valley groundwater basin of approximately 2,600 to 3,300 AFY. The 6.25 AF increase in water usage within the basin spread over two years is 1 percent of the estimated net inflow, and therefore would not substantially deplete groundwater or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or the water table would be lowered.

Surface Water and Drainage

GT-A-1 would be constructed above ground, and would be supported by towers as described above. The storm water modeling performed for SF-B indicated very little change in drainage or surface water flow characteristics in the area where the solar farm arrays will be built. Changes to the land surface for GT-A-1 would be much less than the changes to the land where the solar farm arrays would be built, because the gen-tie line is a linear feature, and the towers that support the line would be much more spread out than the supports for SF-B. Therefore, the impacts to surface water and drainage from the construction of GT-A-1 would be less than the impacts from construction of SF-B, which were identified in the Solar Farm Layout B section as very small. Therefore, construction of GT-A-1 would not cause substantial erosion or siltation, would not increase the potential for flooding or the amount of damage that could result from flooding, and would not contribute additional runoff water.

Water Quality

As described above for SF-B, there are no permanent water bodies in the Project Study Area and only intermittent surface water flows occur. Therefore, no impacts on surface water quality are expected. The potential for groundwater to be impacted by vertical transport of contaminants to the water table by surface water infiltration is expected to be very low. The potential for water quality impacts would be further reduced by implementation of Construction BMPs.

Flooding

Flooding impacts of GT-A-1 less than those for SF-B, because the footprint for GT-A-1 is smaller than the footprint for SF-B, and because the towers that support the gen-tie line are more spread out than the supports for SF-B. The flooding impacts from the construction of SF-B were identified in the Solar Farm Layout B section as very small, and flooding impacts from construction of GT-A-1 can be expected to be less than those for SF-B. Therefore, construction of GT-A-1 would not substantially increase the potential for flooding or the amount of damage that could result from flooding. Furthermore, construction of GT-A-1 would not 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, inundation by seiche, tsunami, or mudflow, because the proposed Project site is not near a dam, levee or a coastline.

Red Bluff Substation A

Groundwater

Groundwater would not be used for construction or operation of the Red Bluff Substation A, and therefore this alternative would not substantially deplete groundwater or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or the water table would be lowered.

Although the Red Bluff Substation A would cover up to 119 acres with impervious surfaces, it is expected to have minor impact on groundwater recharge. Most recharge occurs in stream channels or washes on the margins of the basin, where precipitation at higher elevations runs off onto the valley floor. The amount of precipitation that occurs at lower elevations on the valley floors is much less, and when distributed over a large area moistens the surface soil but does not infiltrate deeply. By collecting and concentrating runoff, the buildings and other impervious surfaces could contribute to a small increase in groundwater recharge. The 10-year storm on the valley floor is estimated to have a peak intensity of about 0.3 inch in 5 minutes. Assuming that about half of this amount runs off, the total runoff from the impervious surfaces of the site would be about 1½ acre-foot. If concentrated into a small area such as a drainage channel or wash, a fraction of this runoff might percolate to the water table.

Surface Water and Drainage

The Red Bluff Substation alternative A would be located on approximately 75 acres of land, just south of I-10. Additional Substation-related Project elements for Red Bluff Substation A would require an additional 43 acres, for a total disturbed area of 119 acres. The Substation is down-slope from the Chuckwalla Mountains, and there are three eroded channels that traverse the Substation A site; these channels would require alteration in order to protect the Substation from potential flooding impacts. Preliminary engineering studies show that a channel on the up-slope side of the Substation can convey stormwater runoff around the Substation, with the flow in the channel discharging through two existing culverts under I-10. Internal surface runoff would be managed by use of a detention basin located on the south end of the substation. The purpose of a detention basin is to reduce peak flows. It is anticipated the basin would measure approximately 120 feet by 200 feet (about one-half acre in area), and this basin would also discharge to the channels around the Substation. Given the estimated peak runoff of the 10-year storm of 0.3 inch in 5 minutes, and assuming that about half of the incident rainfall would be directed to the detention basin, the retention basin would receive about 1½ acre feet, or enough water to fill the detention basin to a depth of 3 feet in a relatively short time.

Drainage improvements for Substation A would disturb approximately 30 acres, which is included in the 43 acres of disturbance for Substation-related Project elements discussed above.

The preliminary engineering studies indicate that construction of Substation A may alter the existing drainage pattern of the area. A channel would be constructed to route flows around Substation A. A one-half acre detention basin would reduce the amount of runoff discharged during the peak of a storm and would help to prevent flooding.

Water Quality

Impacts to water quality are unlikely to occur at the Red Bluff Substation for the same reasons described above for the construction of SF-B. The Red Bluff Substation A would require the limited use of hazardous materials such as fuels, lubricants and cleaning solvents. A Construction Storm Water Pollution Prevention Plan would be prepared for the Project, and this plan would identify construction BMPs to be implemented to avoid spills and respond to spills if they occur. The Plan would also outline protective measures, notification, and cleanup requirements for any incidental spills or other potential releases of hazardous materials.

Flooding

Construction of Red Bluff Substation A would require alteration of three eroded channels that cross the Substation A site in order to protect the Substation from potential flooding impacts. Preliminary engineering studies show that a channel on the up-slope side of the Substation can convey stormwater runoff around the Substation, with the flow in the channel discharging through two existing culverts under I-10. Internal surface runoff would be managed by use of a detention basin located on the south end of the Substation. It is anticipated the basin would measure approximately 120 feet by 200 feet, and this basin would also discharge to the channels around the Substation. Drainage improvements for Substation A would disturb approximately 30 acres, which is included in the 43 acres of disturbance for Substation-related Project elements discussed above.

The preliminary engineering studies indicate that construction of Substation A may alter the existing drainage pattern of the area, but construction of a channel to route flows around the Substation A and construction of a detention basin at the substation would mitigate potential flooding impacts. Therefore, construction of Substation A along with the channel and on site detention basin would not substantially increase the potential for flooding or the amount of damage that could result from flooding. Furthermore, construction of Substation A would not 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, inundation by seiche, tsunami, or mudflow, because the proposed Project site is not near a dam, levee or a coastline.

Summary of Construction Impacts

This section discusses the combined impacts of all Alternative 1 Project components.

Groundwater Supply. Groundwater budgets for the Chuckwalla Valley groundwater basin developed for the Palen and Genesis Solar Power projects indicate there is a net inflow into the groundwater basin of approximately 2,600 to 3,300 AFY. The proposed Project water demand would be on the order of 703 AFY for the 26-month construction period, or approximately 25 percent of the available surplus inflow to the groundwater basin.

Drainage. Although soil compaction could slightly reduce infiltration rates in the soils locally impacted by construction activities, the amount of groundwater recharge that occurs from infiltration of precipitation on the central portions of the basin is relatively low, and most recharge occurs at the basin margins. Nevertheless, decompaction of the soil over 36 percent of the SF-B footprint would minimize any reduction in groundwater recharge caused by compacting the surface soil during construction of this alternative.

Drawdown in the aquifer in the vicinity of the well used to provide water for construction of this alternative would be a maximum of approximately 18 feet, with minor drawdown extending more than one mile from the pumping well. These impacts would be temporary since they would occur only during the construction period, and there would continue to be net surplus annual groundwater storage in the basin, which is expected to result in a continued rise in average groundwater elevations in the basin.

Construction of this alternative would alter surface drainage patterns, but hydrologic modeling indicated construction of Alternative 1 would result in minor changes in the 100-year storm characteristics:

- Peak outflow from the SF-B area footprint would increase by 0.5 percent;
- Total outflow from the SF-B area footprint would increase by 1.2 percent;
- There would be no change in maximum peak flow depths and no change in erosion of the ground surface.

Water Quality

Runoff from storms could transport spilled substances off site into intermittent stream channels. The impacts on surface water quality would be temporary and would have environmental significance mainly because of the potential to distribute contaminants more broadly. The most effective mitigation is spill prevention and quick response to cleanup any spills if they occur. A Construction Storm Water Pollution Prevention Plan will be prepared and implemented and will identify potential contaminants and chemical storage areas, drainage patterns at the site, and Best Management Practices (BMPs) to prevent spills and to respond to spills if they occur. Among the most common types of spills during construction would be spills of hydraulic fluid and fuels. Examples of spill avoidance procedures include storing only small quantities of fuels and chemicals; storing hazardous substances in a limited number of designated central locations; storing chemicals and hazardous materials indoors or under cover so that they do not come into contact with rain or storm water; using secondary containment; and performing periodic inspections to maintain good housekeeping and ensure that appropriate materials management practices are implemented. Spill response kits will be maintained at designated locations near chemical and fuel storage and use sites. Site personnel will be provided appropriate training in implementing the SWPPP, including spill response procedures and chemical management procedures.

Flooding

Storm runoff modeling indicates that potential for flooding would not significantly increase during construction of Solar Farm B. The GT-A-1 would not increase flooding potential. Red Bluff Substation A would be constructed over the site of several intermittent stream channels that convey runoff from the Chuckwalla Mountains. The design of Red Bluff Substation A incorporates diversion channels to divert runoff around the footprint of the substation. In addition, the construction schedule will be phased to address site drainage issues early on. Once constructed, the diversion channels will reduce the potential for flooding the construction site. A retention basin approximately one-half acre in area will be constructed to capture runon and slow and reduce peak flows.

Operation and Maintenance

Solar Farm Layout B

Groundwater

Once the Project is constructed, operations and maintenance water demand would be on the order of a couple of hundred gallons per day, approximately 0.2 AFY. There would be no water use for electricity generation, and the only anticipated water use would be for drinking, washing and the toilets in the Operations and Maintenance (O&M) facility and in the Visitor's Center. O&M water demand would be met by local groundwater, either from nearby existing wells that are located in the Project Study Area or through a new well to be constructed closer to the Solar Farm site. An approximately 5,000 gallon above-ground water tank will be installed adjacent to the O&M facility for site water needs, and this tank would be supplied by the well. If groundwater supplied by the well does not meet drinking water standards, then potable water will be supplied from alternative sources.

The groundwater budget analyses performed for the Palen and Genesis solar energy projects indicated a net inflow of groundwater into the Chuckwalla Valley groundwater basin of approximately 2,600 to 3,300 AFY. The 0.2 AFY increase in water usage within the basin is less than 0.01 percent of the estimated net inflow, and therefore would not substantially deplete groundwater or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or the water table would be lowered.

Surface Water and Drainage

Hydrologic, hydraulic, sediment transport and scour analyses of storm water for SF-B indicated the following (AECOM 2010b; Appendix G):

- Peak outflow for existing conditions versus future conditions represented by SF-B would increase by 0.5 percent (116 cfs) for the 100-year storm, and would increase by 1.1 percent (58 cfs) for the 10-year storm.

- Total outflow volume for existing conditions versus future conditions would increase by 1.2 percent (81 AF) for the 100-year storm, and would increase by 2.8 percent (55 AF) for the 10-year storm.
- There was no change in the maximum flow depths for existing conditions versus future conditions for both the 100-year and 10-year storm
- The sediment transport analysis indicated that there was no change in degradation (erosion) of the ground surface for existing conditions versus future conditions under this alternative for both the 10-year and 100-year storms.

Maximum flow depths for this alternative for the 100-year storm would be 2.2 feet, and would occur in Pinto Wash, located to the east of SF-B. Maximum flow depths within the footprint of SF-B would be between 1.501 and 2 feet, and occur generally in the wash areas in the center of SF-B (see Figure 3.5-3 and Figure 9 in AECOM 2010b; Appendix G).

Minimizing the increase in the runoff volume and peak outflow described above is based on decompacting the soil between solar panels to increase infiltration potential. Sunlight may also implement other mitigation measures to mitigate post-construction impacts such as installing retention basins upstream of SF-B to intercept storm water flows or installing check dams to reduce outflow volume by retaining storm water on site. These measures would reduce the amount of surface flow coming on to the site during storms and increasing residence time of surface water flows on site, thereby reducing flow depths, outflow volumes, and the amount of sediment transport at the Project site, and further minimizing the impacts of Project construction. These and other mitigation measures are discussed below.

Water Quality

It is unlikely that water quality would be impacted by operation and maintenance of the proposed Project for the same reasons described above for the construction phase of the Project. Smaller quantities of chemicals and petroleum products would be used or stored during operation and maintenance. Prevention and response to potential spills or releases of mineral oil from the electrical transformers would be addressed by implementation of a SPCC Plan.

Sunlight would prepare an SWPPP for the proposed Project which would identify structural and non-structural BMPs to manage the offsite discharge of storm water from SF-B. Sunlight would coordinate with the Colorado River Basin RWQCB regarding potential coverage under the Construction General Permit for Stormwater Discharge for the proposed Project. Sunlight would also prepare an SPCC Plan, due to the presence on the site of oil-containing transformers. Appropriate spill containment and clean-up kits would be maintained on site during construction, to provide mitigation in the event of a chemical spill. Appropriate spill containment and clean-up kits would be maintained on site during construction, to provide mitigation in the event of a chemical spill.

Flooding

As discussed above, the depth of runoff on the SF-B site in response to a 100-year runoff event prior to buildout is expected to be on the order of 1.5 to 2 feet in the zones where the existing washes cross the center of the site, and would be as much as 2.2 feet on the eastern edge of the site on the margin of Pinto Wash. The Project is not expected to increase these depths significantly.

Flooding of this magnitude, however, may cause significant erosion, since the site will have been regraded to fill existing gullies. Riverside County will review the grading design to ensure that it meets drainage requirements.

Modeling results indicate that the Project would increase flows in Pinto Wash downstream of the Project site by approximately one percent.

Gen-Tie Line A-1

Groundwater

Operation and maintenance of the transmission lines would require routine but infrequent inspection along the access roads constructed for that purpose. Maintenance of the roads would require periodic regrading and repair of washouts. These activities may require application of water for dust control. The water might be taken from various sources and transported to the site by truck. The quantities required would not be significant. Relatively small quantities of groundwater are expected to be used for operating and maintenance of the GT-A-1, and therefore, no impacts on groundwater are expected.

Surface Water and Drainage

GT-A-1 facilities are mostly above ground, and once installed would not alter drainage patterns or surface water infiltration rates. Normal gulley erosion is expected to occur along the access roads used to inspect and maintain the transmission lines, and the roads may require occasional regrading or repair, but these activities are not expected to impact surface drainage patterns.

Water Quality

Most of the potential for water quality impacts would occur during construction, and as described above are expected to be small. There would be very limited use of hazardous materials or chemicals to support operation and maintenance of the GT-A-1 portion of the Project.

Flooding

GT-A-1 is not expected to contribute to increased flooding potential compared to existing conditions, because the footprint is relatively small, and compaction impacts that could reduce infiltration would be limited to the access road. The transmission poles and the access road are not expected to impede stormwater flows. Erosion by stormwater flows that cross the access road may cause washouts that would require regrading of the road. If culverts are installed, then flooding could occur at the culverts if they become clogged by sediment or debris.

Red Bluff Substation A

Groundwater

Once constructed, the Red Bluff Substation would be unmanned, and electrical equipment within the substation would be remotely monitored. Routine maintenance would require little or no water in most cases. Therefore, no groundwater impacts are expected during operation and maintenance of Red Bluff Substation A.

Surface Water and Drainage

The substation would be constructed in an area traversed by existing washes that are subject to periodic high flows. As described above, surface drainage would be routed around the facility to protect the site. The design will meet building permit requirements.

Water Quality

Most of the potential for water quality impacts would occur during construction. There would be very limited use of hazardous materials or chemicals to support operation and maintenance of Red Bluff Substation A, and negligible opportunity for spills. Therefore, no water quality impacts are expected during operation and maintenance of the Red Bluff Substation A.

Flooding

The natural drainage channels would be altered to prevent flooding and erosion of the Red Bluff Substation A site. The design is intended to achieve an acceptable flood risk in accordance with permit requirements. The Project will not alter potential for flooding downstream of the site.

Summary of Operation and Maintenance Impacts

The impacts on water resources from operation and maintenance of the Project are expected to be less than during the construction phase of the Project. Groundwater consumption for operation and maintenance is estimated to be negligible, about 0.2 AFY, and may be supplied by a new production well or existing wells. Overall, the impact on groundwater elevations in the basin would not be measurable. Over time, runoff is likely to continue to cause erosion and the surface will need to be repaired to maintain access. This may require use of small quantities of water for dust control. An SPCC Plan would be implemented to address mineral oil contained in the electrical transformers at SF-B. Inspection and monitoring of the equipment is expected to reduce the potential for a release, and if a release occurs, the mineral oil will be cleaned up. The mineral oil would not contain PCBs. The potential for impacts to surface water or ground water quality from a spill or release during operation and maintenance of the Project is expected to be low because there is low potential for a release, a protective level of response would be implemented if a spill occurs, and because there are no permanent surface water bodies and groundwater is at relatively great depth.

Decommissioning

Solar Farm Layout B

Groundwater

The impacts on groundwater supply from decommissioning are expected to be similar to, or less than the impacts during construction, assuming that the purpose of decommissioning would be to restore the site to approximately its initial condition, and therefore are not expected to be substantial. The scope of the decommissioning phase of the Project is not known. It is expected that structures would be removed, involving some ground disturbance, but it is not known whether the site would be regraded or revegetated. The types of activities necessary to remove the solar panels, underground cable, and other materials would require use of construction equipment with the potential for leaks and spills of hydraulic fluid and fuels. It is not known whether transformers would be drained, but if they were, the work would be done in accordance with the SPCC Plan. If regrading of the site is required, it would be done in accordance with a grading permit, requiring preparation and implementation of a Construction SWPPP. Dust control measures would be implemented, requiring a source of water. Impacts on groundwater storage would be temporary and would include localized lowering of the water table.

Surface Water and Drainage

Removal of the solar panels, roads, buildings, underground utilities, and other installed equipment would result in soil disturbance similar in magnitude to the disturbance caused by construction. Removal of the solar panels, roads and buildings would expose the ground surface to erosion by water. There would be limited vegetation cover on the site to slow water erosion. The natural desert pavement, which becomes established very gradually as wind removes soil leaving rocks to cover the surface, will have been removed, leaving surface soils more vulnerable to erosion. After decommissioning, natural erosion processes would work to establish a new network of drainage channels through the site, similar to the drainage pattern that existed prior to construction. Since these effects would occur over a large area, they might result in alteration of the broader drainage pattern by allowing channels to converge further upslope than under current conditions, reducing the number of channels and deepening the primary channels. These effects would be most severe in the less-frequent higher magnitude runoff events, and therefore might not be observed for many years.

Water Quality

Because there are no permanent surface water features in the Project Study Area, the impacts of decommissioning on surface water quality would be transient, resulting in an increase in sediment transported downslope in runoff. During decommissioning, a Construction Storm Water Pollution Prevention Plan would be implemented and the plan would include BMPs to address management of chemicals and hazardous materials, including fuel and lubricants that may be required for decommissioning activities. The impacts would be similar to those described for construction of the Project.

Flooding

As discussed above, decommissioning may result in increased erosion and greater concentration of runoff, and downslope transport of soil while new drainage patterns become reestablished. This may result in localized flooding in areas where sediment is redeposited. In particular, if erosion increases, sediment is likely to be conveyed to the existing principal wash channels, and the additional sediment could contribute to clogging of culverts at road crossings.

Gen-Tie Line A-1

Groundwater

Water would be needed for dust control during decommissioning, with the effects of decommissioning the transmission lines on groundwater supplies similar to or less than those described for construction, since the primary requirement for water in the construction phase is for dust control on access roads, and little or no alteration of the access roads would be needed during decommissioning.

Surface Water and Drainage

Decommissioning of the transmission lines and access roads would have little impact on surface drainage since there would be no significant ground disturbance. If no longer maintained, the access roads would gradually become eroded as the land surface reverts to pre-construction conditions. It is possible that the access roads would continue to be maintained, however, for other purposes.

Water Quality

No impacts are expected on surface water or ground water quality for the same reasons discussed above under construction impacts.

Flooding

Potential for flooding impacts would depend on the details of the decommissioning project. For example, if access roads are not removed, then flooding might occur at culverts unless the culverts are maintained.

Red Bluff Substation A

Groundwater

Only small amounts of water would be required to control dust during decommissioning of Red Bluff Substation A. Therefore, impacts on groundwater supply are expected to be negligible, similar to those expected during construction.

Surface Water and Drainage

Decommissioning Red Bluff Substation A may or may not involve removal of channel protection structures installed to re-route storm drainage around the substation site. If not maintained, the altered channels would probably be attacked by erosion during intermittent large runoff events as the channel attempts to reestablish its preconstruction flow path.

Water Quality

As discussed above, surface and groundwater quality impacts are expected to be similar to those described for construction.

Flooding

Decommissioning could result in locally increased flooding potential at culverts along the access roadway, and along the stream channel that was altered in the construction phase, if the culverts or channels become blocked by sediment. Increased erosion may occur on the Substation site while vegetation becomes reestablished. However, since most erosion is caused by overland flow from upstream sources, rather than from direct precipitation, which is very low on the valley floor, and because the Substation site is relatively small, erosion on the surface of the Substation site would probably be relatively minor.

Summary of Decommissioning Impacts

The impacts of decommissioning would depend on the details of the decommissioning project, but can be discussed qualitatively and in general terms. Effects of decommissioning on water resources would be similar to those described for construction of the Project. The effects would primarily result from erosion of altered and unprotected land surfaces. These effects would be greatest in the SF-B footprint because of removal of solar panels and lack of vegetation on the site, and because of the large land area included in the SF-B site.

Summary of Combined Impacts for Alternative 1

Groundwater

Overall impacts on groundwater hydrology such as drawdown of the water table or changes in basin storage are expected to be minor. It is estimated that groundwater drawdowns of about one foot could occur at the wells closest to the proposed construction well, depending on the properties of the aquifer. The drawdown would be temporary during the approximately two-year construction period, since the long-term water requirement for operation and maintenance are much less than for construction. Drawdowns on the order of one foot would not significantly impact the operation or cost of pumping existing wells. The estimated short-term groundwater demand of about 650 AFY during construction represents about 20 to 25 percent of the estimated 2,500 to 3,500 AFY surplus inflow to the Chuckwalla Valley Groundwater Basin relative to outflow from the basin. Water levels in the basin would, on average, continue to rise slightly during the construction phase of the Project. By comparison, the operation and maintenance of the Project would require only about 0.2 AFY, which would have no measurable effect on groundwater levels in the basin.

Surface Water and Drainage

Streams are ephemeral in the Study Area, so the primary effect of chemical spills or releases on surface water quality would be to transport chemicals downslope, disperse them over a wider area, and deposit them in shallow soil. A Construction SWPPP would be prepared for the Project during construction and decommissioning, which would address procedures for managing chemicals and avoiding and cleaning up spills. An SPCC Plan would be required during operation and maintenance. These plans will identify specific BMPs to address spills. Implementation of the BMPs will reduce the potential for significant adverse impacts associated with surface water.

Water Quality

The Project is not expected to have any impacts on water quality, with the exception of increased sediment carried by surface water during construction and decommissioning. These impacts are not strictly water quality impacts, because surface flows are intermittent in the study area and runoff typically carries high sediment loads. Since hazardous substances and especially petroleum hydrocarbons would be stored and used in the study area during construction and decommissioning, there is a potential for spills or releases to impact surface water or groundwater. However, the potential for releases would be reduced through compliance with stormwater regulations requiring implementation of BMPs, including storage of hazardous materials and petroleum hydrocarbons in secondary containment, and training of employees in the proper management of hazardous substances and cleanup of spills and releases. Although small accidental spills of substances like hydraulic fluid or fuel are common at construction sites, the potential for spills to impact groundwater would be further reduced because of the relatively great depth to groundwater at the site, the nature of the underlying geology, and the low precipitation in the study area.

Flooding

The SF-B site would be graded to fill gullies and remove topographic irregularities, existing vegetation cover would be removed, and the soil would be compacted during construction. Compaction would reduce infiltration potential by lowering the soil permeabilty. Roads and structures would also reduce the amount of surface area available for infiltration of stormwater. Regrading of the site would promote sheet flow (spreading the runoff over a broader area, rather than concentrating it in channels. Without established vegetation cover, runoff velocity and erosion potential would be greater than on the surrounding land.

Flooding is less likely to occur in other areas of the study area, such as along transmission corridors or at the Red Bluff Substation A site. Transmission lines would be above ground and would not impede storm water runoff. Access roads would generally follow the contours of the land, with grading and compaction necessary to allow vehicle access. The natural drainage channels at the Red Bluff Substation A site would be altered to conduct runoff around the site, with armoring of the banks of the channel to reduce erosion potential. The roads and substation cover a relatively small percentage of the overall surface areas and would not reduce infiltration enough to cause a measurable increase in flooding.

Decommissioning the SF-B site would expose a large unvegetated land area to erosion from runoff. Because the land will have been regraded, and the soil disturbed, the desert pavement will also have been removed. After decommissioning, the land surface would be subjected to erosional downcutting especially where the existing principal washed cross the site. Without vegetation and maintenance of the erosion mitigation measures, erosion is likely to be accelerated after decommissioning. Soil may be transported downslope before vegetation has a chance to become established, resulting in sediment accumulation downstream and greater flooding potential there.

Applicant Measures and Mitigation Measures

BMPs would be implemented as part of the Construction Stormwater Pollution Prevention program to reduce erosion and to prevent pollutants from being transported by stormwater. Among the BMPs that may be implemented to reduce erosion are: phased construction to minimize the area of disturbed soil that is vulnerable to erosion and to avoid areas where runoff concentrates; grubbing and removing vegetation cover only when necessary; scheduling to avoid construction during periods of high runoff potential; contouring and grading to direct stormwater into retention basins, to prevent runoff from concentrating, and to direct runon away from sensitive areas; covering or placing berms around stockpiles; designing roads and the onsite transportation plan to avoid areas of the site with higher runoff or flooding potential; constructing bridges across narrow washes; using silt fences and straw bales to slow or direct stormwater around high use areas or storage areas.

BMPs to reduce potential for contaminant spills or releases include: *AM-WAT-1* training construction staff in the management of hazardous materials and use of spill control and cleanup equipment; *AM-WAT-2* having a clear chain of command within the organizational structure with responsibility for implementing, monitoring, and correcting BMPs; *AM-WAT-3* covering and containing hazardous materials so that they are not in contact with precipitation or runoff; *AM-WAT-4* storing hazardous materials in one or more central areas, and instituting rules requiring all hazardous materials to be secured at the end of the day; *AM-WAT-5* maintaining good inventory records; storing hazardous liquids and dispensing equipment in secondary containment; *AM-WAT-6* maintaining adequate quantities of spill containment and response equipment at readily accessible points throughout the site; *AM-WAT-7* identifying the worst case and most likely spill scenarios, and providing spill response equipment adequate to respond to these scenarios; *AM-WAT-8* using chemicals presenting the least environmental hazard wherever possible; *AM-WAT-9* storing the smallest quantities of hazardous materials possible on the site; *AM-WAT-10* maintaining site security to reduce vandalism; *AM-WAT-11* requiring 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.

Among the features that are incorporated into the project design to address potential impacts on water resources are the measures identified in the Storm Water Hydrology Report for Alternative B (AECOM. 2010b; Appendix G) to reduce flooding and erosion effects associated with the 100-year design runoff event. The modeling results indicate that the most effective measure to reduce runoff depth and velocity would be *AM-WAT-12* decompacting the soil between solar panels to increase infiltration potential.

Additional mitigation measures could include placing riprap on the site; installing retention ponds upstream to capture runon, constructing check dams to slow runoff within or at the downstream end of the site, and constructing strip detention basins to retain and slow runoff within the site or at the downstream end of the site.

- *AM-WAT-13 Riprap* increases surface roughness and slows runoff velocities, decreasing sediment transport, and increasing flow depth. Riprap would be used in conjunction with decompaction, as riprap would not mitigate flow or volume.
- *AM-WAT-14 Retention basins* could be located along the upstream western boundary of the Project site to intercept run on storm water flows. The intent of this measure is to reduce overall flow depths, velocities and outflow volume by retaining run-on storm water volume. They would also reduce sediment transport within the Project site.
- *AM-WAT-15 Check dams* can be constructed to address specific post-development hydraulic characteristics that remain after implementation of the decompaction measure. Check dams could be located near the downstream southern boundary of the Project site to intercept run off. Check dams would have an effect on the storm water upstream of each dam because the storm water would back up behind each dam. Check dams would also reduce flow velocities and would retain sediment.
- *AM-WAT-16 Strip detention basins* would be approximately six inches deep and 70 feet wide, and would be designed to follow the topographic contours of the site, so their lengths would be dependent on the locations of the basins on the site. These detention basins could be located near the downstream southern boundary of the Project site to intercept run off storm water flows. The intent of this measure is to reduce outflow volume by detaining run-

off storm water volume, similar to the check dam measures. Strip detention basins would not have an effect on the storm water upstream of each basin but would reduce flow velocities and sediment transport leaving the Project site.

CEQA Significance Determination

Solar Farm Layout B

Construction of Solar Farm Layout B over land that is dissected by a network of washes, and regrading of the site to level by cutting and filling the irregularities of the terrain, could lead to substantial flooding- and erosion-related impacts (criteria WR-3, WR-4, and WR-5). Impacts would be mitigable to less than significant by implementation of Storm Water BMPs, including both administrative and engineering BMPs. These BMPs could include, but are not limited to scheduling construction for a low-rainfall periods; phasing work to avoid exposing excessive disturbed surface area to erosional forces; decompacting soils between solar arrays to stimulate infiltration, installing rip-rap, constructing retention basins upslope of the site, constructing strip detention basins within the site or at the downstream ends of the site, and constructing check dams to reduce runoff velocity and trap sediment. BMPs will be included in the Construction SWPPP for the Project.

Impacts would be less than significant for criterion WR-2. The highest water use would be during construction, but the impacts of pumping would be small and localized relative to the size of the groundwater basin.

There would be no impacts under criteria WR-1, WR-6, WR-7, WR-8, and WR-9. The Project would obtain all necessary permits and would comply with state, local, and federal laws and regulations. The Project does not lie in a flood plain and does not include any wetlands. If the groundwater does not meet drinking water standards, the water will be labeled as non-potable, and potable water will be supplied from an alternative source.

As discussed in Chapter 3, the Project does not require a WSA for compliance with SB-610. The Project proponent would prepare a Construction SWPPP. The Project proponent would obtain well construction permits from Riverside County, and water rights to appropriate groundwater. The Project proponent would obtain building permits, and a permit to install septic systems as needed.

Operation and maintenance impacts would be significant and mitigable to less than significant for criteria WR-3 and WR-4 for much the same reasons as discussed above for the construction phase of the Project. Impacts would be less than significant for criterion WR-2 since a smaller quantity of groundwater would be required for O&M than for construction. There would be no impact under criteria WR-1, WR-5, WR-6, WR-7, WR-8, and WR-9 for the reasons discussed above. Mitigation measures would be similar to those described for construction. Measures to address WR-3 could include decompaction of soils between solar arrays, installation of rip-rap, construction of retention basins upslope of the site, construction of strip detention basins within the site or at the downstream ends of the site, and construction of check dams to reduce runoff velocity and trap sediment.

Decommissioning impacts would be similar to the impacts of construction; however, the impacts would depend on the specific components of the decommissioning project, as well as on the environmental and regulatory conditions prevailing at the time of decommissioning. Decommissioning impacts are expected to be significant and mitigable to less than significant for criteria WR-3, WR-4, and WR-5 and less than significant for criterion WR-2. There would be no impact under criteria WR-1, WR-6, WR-7, WR-8, and WR-9. Decommissioning would alter the existing drainage pattern at the time decommissioning is implemented, but the objective of decommissioning would include restoring the site to its prior condition. Mitigation for WR-5 would include implementation of Construction Stormwater BMPs as described under Construction, above.

Gen-Tie Line A-1

Construction impacts would be less than significant for criteria WR-3 and WR-4 and less than significant for criteria WR-2, WR-3 and WR-4. There would be no impact under criteria WR-1, WR-5, WR-6, WR-7, WR-8, and WR-9.

Operation and maintenance impacts would be less than significant for criteria WR-2, WR-3 and WR-4. There would be no impact under criteria WR-1, WR-5, WR-6, WR-7, WR-8, and WR-9.

Decommissioning impacts would be similar to the impacts of construction; however, the impacts would depend on the specific components of the decommissioning project, as well as on the environmental and regulatory conditions prevailing at the time of decommissioning. Decommissioning impacts are expected to be significant and mitigable to less than significant for criteria WR-3, WR-4, and WR-5 and less than significant for criterion WR-2. There would be no impact under criteria WR-1, WR-6, WR-7, WR-8, and WR-9. Mitigation for WR-5 would include implementation of Construction Stormwater BMPs.

Red Bluff Substation A

Construction impacts would be less than significant for criteria WR-3 and WR-4 and less than significant for criteria WR-2. In regard to WR-4, the Red Bluff Substation would require alteration of three existing intermittent stormwater channels. The alteration would divert storm runoff to the perimeters of the construction site. The diversion sections would be armored with rip-rap to protect the banks from erosion. Once having passed the substation, the storm discharge can continue along natural drainages. There would be no impact under criteria WR-1, WR-5, WR-6, WR-7, WR-8, and WR-9.

Operation and maintenance impacts would be less than significant for criteria WR-2, WR-3 and WR-4. There would be no impact under criteria WR-1, WR-5, WR-6, WR-7, WR-8, and WR-9.

Decommissioning impacts would be similar to the impacts of construction; however the impacts would depend on the specific components of the decommissioning project, as well as on the environmental and regulatory conditions prevailing at the time of decommissioning. Decommissioning impacts are expected to be significant and mitigable to less than significant for criteria WR-3, WR-4, and WR-5 and less than significant for criterion WR-2. There would be no impact under criteria WR-1, WR-6, WR-7, WR-8, and WR-9. Mitigation for WR-5 would include implementation of Construction Stormwater BMPs.

Unavoidable Adverse Effects

No unavoidable significant impacts are expected under Alternative 1.

4.17.4 Alternative 2 – Alternate Action

Construction

Solar Farm Layout B

Impacts for SF-B under Alternative 2 would be the same as those described for SF-B under Alternative 1.

Gen-Tie Line B-2

The total length of GT-B-2 is ten miles. Construction of this line would require a total of 1,075,000 gallons of water (approximately 3.3 AF), a little more than half of the water that is required for GT-A-1. Water resources impacts from GT-B-2 would be the same or less than the impacts from GT-A-1, because of the shorter length of GT-B-2, and the lower water requirements for construction.

Red Bluff Substation B

The Red Bluff Substation B would be located on approximately 75 acres, just south of I-10, west of Desert Center. Additional Substation-related Project elements for Substation B would require an additional 21 acres, resulting in a total disturbed area of 96 acres. The Substation location is down-slope from the Chuckwalla Mountains, and there is one minor drainage channel that runs northward through the center of this site. Flow from this channel would be redirected around one side of the Substation, and the Substation's southern boundaries would be protected from surface runoff by the installation of a berm designed to direct the flow around both sides of the Substation, similar to the way drainage would be redirected for Red Bluff Substation A. Drainage improvements for Substation B would disturb approximately 20 acres, less than the 30 acres required for drainage improvements for Substation A. As with Substation A, construction of Substation B would not substantially alter the existing drainage pattern of the area, and it is not expected to result in substantial erosion or siltation on- or off-site, substantially increase the potential for flooding or the amount of damage that could result from flooding, and would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Summary of Construction Impacts

The impacts from construction of SF-B would be similar to those described for Alternative 1. The differences in impacts on water resources between Alternative 2 and Alternative 1 result primarily from the slightly lower demand for groundwater and the smaller footprints of the transmission line and the substation components. The nature of the impacts from each of these components would be substantially the same as described for Alternative 1, and when the components are taken together, the differences in impact between Alternatives 2 and 1 are probably within the range of uncertainty in the analysis.

Operation and Maintenance

Solar Farm Layout B

The SF-B component of Alternative 2 is identical to that of Alternative 1, and the impacts resulting from operating and maintaining SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

The impacts resulting from operating and maintaining GT-B-2 would be similar to those discussed under Alternative 1 for GT-A-1. As for GT-A-1, no significant quantity of groundwater would be required for operation and maintenance of GT-B-2. Use of hazardous materials for operation and maintenance of the GT-B-2 would be minimal, and no impacts on surface water or groundwater quality are expected.

The routes of GT-B-2 and GT-A-1 both run adjacent to existing roads for about the same distance, but Gen-Tie Line B-2 lies further upslope on the basin margin than GT-A-1, where erosion processes are more dominant and channels of washes are deeper and farther apart than at lower elevations of GT-A-1. The northern segment of GT-B-1 would be routed up the slope of the alluvial fan on the margin of Big Wash, which discharges on the east slope of the Eagle Mountains. Big Wash, as the name suggests, drains a relatively large watershed through a narrow canyon, creating the potential for flash flooding and high velocity discharges in the area where the transmission line turns south along Eagle Mountain Road. Lower on alluvial fans, such as where GT-A-1 is routed, washes tend to broaden, discharges from the washes tend to dissipate, and sediment deposition is the dominant process. The GT-B-2 route may be subject to more frequent washouts requiring repair or regrading of the access road than for GT-A-1, although the Project itself is not expected to increase flooding potential or alter surface drainage patterns.

Red Bluff Substation B

As with Substation A, Substation B would not substantially alter the existing drainage pattern of the area such that it would result in substantial erosion or siltation on- or off-site, would not substantially increase the potential for flooding or the amount of damage that could result from flooding, and would not 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. The impacts resulting from operating and maintaining Red Bluff Substation B would be similar to those discussed under Alternative 1.

Summary of Operation and Maintenance Impacts

As indicated above for the impacts of construction, the differences in impacts on water resources between operation and maintenance of Alternative 2 relative to Alternative 1 result primarily from the slightly lower demand for groundwater and the smaller footprints of the transmission line and the substation components of Alternative 2. The nature of the impacts from each of these components would be substantially the same as described for Alternative 1, and when the components are taken together, the differences in impact between Alternatives 2 and 1 are probably within the range of uncertainty in the analysis.

Decommissioning

Solar Farm Layout B

The impacts resulting from decommissioning SF-B would be the same as those discussed under Alternative 1.

Gen-Tie Line B-2

The impacts resulting from decommissioning GT-B-2 would be similar to those discussed under Alternative 1, but because the transmission line easement is shorter than for GT-A-1, the water use requirements and other water-related impacts would be slightly less.

Red Bluff Substation B

The impacts resulting from decommissioning Red Bluff Substation B would be similar to those discussed under Alternative 1, but because the footprint of Red Bluff Substation B is smaller than the footprint of Substation A, the water-related impacts would be slightly less.

Summary of Decommissioning Impacts

The impacts resulting from decommissioning under Alternative 2 would be similar to those discussed under Alternative 1, but slightly less, because of the smaller footprints of the transmission line and substation components. Routing GT-B-2 higher on the alluvial fan at Big Wash may require more frequent repairs of the access road because erosion processes are expected to be more active in this area.

Summary of Combined Impacts for Alternative 2

The combined impacts resulting from Alternative 2 would be similar to those discussed under Alternative 1.

Applicant Measures and Mitigation Measures

Applicant Measures and Mitigation Measures to avoid or reduce impacts on water resources for Alternative 2 would be the same as those discussed under Alternative 1.

CEQA Significance Determination

Solar Farm Layout B

The CEQA significance determination for SF-B is the same as that discussed Alternative 1.

Gen-Tie Line B-2

The CEQA significance determination for GT-B-2 is the same as discussed under Alternative 1 for GT-A-1.

Red Bluff Substation B

The CEQA significance determination for Red Bluff Substation B is the same as discussed under Alternative 1 for Red Bluff Substation A.

Unavoidable Adverse Effects

No unavoidable significant impacts are expected under Alternative 2.

4.17.5 Alternative 3 – Reduced Footprint Alternative

Construction

Solar Farm Layout C

The impacts resulting from constructing SF-C in Alternative 3 would be similar to those discussed under Alternative 1, except that the magnitude of the impacts associated with surface water drainage, erosion, and flooding would be less than for SF-B because of the smaller area of SF-C (3,045 acres for SF-C versus 4,245 acres for SF-B). Less groundwater would be required for dust control and other uses during construction of SF-C than for construction of SF-B.

Gen-Tie Line A-2

GT-A-2 would extend for approximately 9.5 miles, almost 3 miles shorter than GT-A-1. Construction of this line would require a total of 2,635,000 gallons of water (approximately 8.1 AF), which is approximately 30 percent more water than Gen-Tie Line A-1 would require. The impacts to water quality and water resources would be similar to those described previously for GT-A-1. GT-A-2 would be routed along an existing road, but lower in elevation on the valley floor than GT-A-1, where erosion is less active and washouts of the access road may be somewhat less frequent. The last segment of the GT-A-2 route climbs up an alluvial fan among several converging washes emanating from the north slope of the Chuckwalla Mountains, but this segment is similar to the last segment of Gen-Tie Line A-1. Neither transmission line is expected to significantly alter surface drainage patterns or increase flooding potential.

Red Bluff Substation A

The impacts resulting from constructing Red Bluff Substation A in Alternative 3 would be the same as those discussed under Alternative 1.

The alternative access road to Substation A (Access Road Sub-Alternative 2) would be from the Corn Springs exit from Interstate I-10 via a 3,200-foot long paved section of the existing Chuckwalla Valley Road heading east along the southern frontage of the freeway. From this point the access would head south along a 300-foot long section of Corn Springs Road, then turn west through roadway improvements to approximately 20,000 feet of the existing dirt pipeline patrol road to the substation site. Due to the potential for surface flooding over a 17,000 foot portion of the gas line patrol road, additional improvements may be necessary to protect the road. Assuming a 40-foot wide land disturbance for the roadway improvements the resulting land disturbance is approximately 21 acres.

Project water demand for construction of this access road would be met by local groundwater, either from nearby existing wells that are located in the Project Study Area or through a new well to be constructed closer to the solar farm, or possibly through another source of water. It is likely that the amount of water needed to construct this access road would be relatively small compared to the perennial groundwater yield within the Chuckwalla Valley Groundwater Basin of 10,000 to 20,000 AFY and therefore the increase in water usage within the basin will not substantially deplete groundwater or interfere with groundwater recharge such that there will be a net deficit in aquifer volume or the water table would be lowered.

Flooding impacts from construction of this access road would be similar to the impacts described for construction of Substation A under Alternative 1. Water quality impacts from Access Road 2 would also be similar to the impacts described for construction of Substation A under Alternative 1.

Summary of Construction Impacts

As for Alternative 1, groundwater usage for construction of Alternative 3 would be within the range of the perennial groundwater yield of the Chuckwalla Groundwater Basin, and therefore would not deplete groundwater supplies. Locally, the effects of pumping on drawdown would be less than under Alternative 1. Construction of this alternative would impact surface water flow patterns, but it would not substantially alter the existing drainage pattern of the area such that it would result in substantial erosion or siltation on- or off-site, would not substantially increase the potential for flooding or the amount of damage that could result from flooding and would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Hazardous material usage for construction of this alternative would be relatively low, consisting mainly of fuel and lubricants, and these materials would be managed in accordance with BMPs. For the same reasons discussed under Alternative 1, no water quality standards or waste discharge requirements would be violated to implement Alternative 3, and there would be no impact on surface or groundwater quality. The Project Study Area is not within a flood hazard zone and is not expected to increase flood potential. Although no stormwater modeling was performed specifically to analyze the impacts of SF-C, storm water modeling performed for SF-B demonstrated little or no increase in flood volume downstream of the Project, and the impact would be less for SF-C because of its smaller footprint compared with SF-B.

The impacts resulting from construction under Alternative 3 would be similar in character, but slightly lower in magnitude to those discussed under Alternative 1.

Operation and Maintenance

Solar Farm Layout C

The impacts resulting from operating and maintaining SF-C under Alternative 3 would be similar to those discussed under Alternative 1, except that the magnitude of the impacts associated with surface water drainage, erosion, and flooding would be less than for SF-B because of the smaller footprint of SF-C.

Gen-Tie Line A-2

The impacts resulting from operating and maintaining GT-B-2 under Alternative 3 would be similar to those discussed under Alternative 1, except that because the route is lower on the valley floor, it is expected that less frequent access road repair may be required (see note on Access Road 2, below).

Red Bluff Substation A

The impacts resulting from operating and maintaining Red Bluff Substation A in Alternative 3 would be the same as those discussed under Alternative 1.

As discussed above under construction impacts, Access Road 2 would use approximately 20,000 feet of the existing dirt pipeline patrol road, which is vulnerable to surface flooding over a 17,000 foot portion of the road. This flooding potential could require additional repairs, with resulting additional water use for dust control; however, the overall impact on water resources is expected to be negligible.

Water quality impacts from Access Road 2 would also be negligible for the reasons discussed under Alternative 1.

Summary of Operation and Maintenance Impacts

The impacts resulting from operation and maintenance under Alternative 3 would be similar in character, but generally lower in magnitude to those discussed under Alternative 1.

Decommissioning

Solar Farm Layout C

The impacts resulting from decommissioning SF-C under Alternative 3 would be similar to those discussed under Alternative 1, except that the magnitude of the impacts would be less due to the smaller footprint of SF-C compared to SF-B.

Gen-Tie Line A-2

The impacts resulting from decommissioning GT-A-2 under Alternative 3 are expected to be similar to those that occur during the construction phase, as discussed under Alternative 1, except that slightly more groundwater may be required for dust control during decommissioning of GT-A-2 than for decommissioning of GT-A-1.

Red Bluff Substation A

The impacts resulting from decommissioning Red Bluff Substation A under Alternative 3 would be the same as those discussed under Alternative 1.

The impacts on water resources from decommissioning Access Road 2 would depend on the details of the decommissioning project. Restoring Access Road 2 to its previous condition prior to construction, when it was maintained as a gas line patrol road, would probably involve minimal decommissioning, if any.

Summary of Decommissioning Impacts

The impacts resulting from decommissioning under Alternative 3 would be similar in character to those discussed under Alternative 1, except that the overall magnitude of the impacts on erosion, surface water drainage, and flooding would be somewhat less because of the smaller footprint of SF-C, and the slightly reduced groundwater requirement for construction of SF-C, the minor increased groundwater requirement of GT-A-2, and the probably small groundwater requirement of Access Road 2.

Summary of Combined Impacts for Alternative 3

The combined impacts resulting from Alternative 3 would be similar to those discussed under Alternative 1. Most of the impacts would occur during construction and decommissioning of SF-C and lower in magnitude than those under SF-B because the footprint of SF-C is smaller than that of SF-B.

Applicant Measures and Mitigation Measures

The mitigation measures, project design features, and BMPs used to reduce the potential for significant impacts under Alternative 3 would be the same as those described for Alternative 1.

CEQA Significance Determination

Solar Farm Layout C

The CEQA significance determination for SF-C would be the same as that discussed under Alternative 1.

Gen-Tie Line A-2

The CEQA significance determination for GT-A-2 would be the same as that discussed under Alternative 1.

Red Bluff Substation A

The CEQA significance determination for Red Bluff Substation A would be the same as that discussed under Alternative 1.

Unavoidable Adverse Effects

No unavoidable significant impacts on water resources have been identified.

4.17.6 Alternative 4—No Issuance of a Right-of-Way Grant and No Land Use Plan Amendment (No Action)

Under this alternative, the proposed Desert Sunlight Solar Farm Project 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, there would be no additional groundwater pumping, no potential for spills or releases to impact surface water, and flooding would not impact people or structures on the site. The land on which the Project is proposed would become available to other uses that are consistent with BLM's land use plan, including another solar project requiring a land use plan amendment. In the absence of this Project, other renewable energy projects may be constructed to meet state and federal mandates, and those projects could have similar, or other, impacts on water resources.

4.17.7 Alternative 5—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Unsuitable for Solar Energy Development (No Action with Plan Amendment)

Under this alternative, the proposed Desert Sunlight Solar Farm Project 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, 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 the CDCA Plan would be amended so no solar energy projects can be 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. However, in the absence of this Project, other (non-solar) projects may be constructed, and those projects may or may not have impacts on water resources.

4.17.8 Alternative 6—No Issuance of a Right-of-Way Grant with Land Use Plan Amendment to Identify the Area as Suitable for Solar Development (No Action with Plan Amendment)

Under this alternative, the proposed Desert Sunlight Solar Farm Project would not be approved by the BLM, and the BLM would amend the CDCA Plan to allow for other solar projects on the site. As a result, it is possible that a solar energy project could be constructed on the Project site with different or greater impacts on water resources.

Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. Construction and operation requirements for solar technologies vary; however, it is expected that all solar technologies require some grading and some infrastructure, and require some amount of water. While it is not possible to assess with any certainty the impacts of another solar project, the impacts on water resources during construction and decommissioning would probably be similar for another project of similar size. Some types of solar facilities consume significantly larger amounts of water for operation and maintenance than the proposed Project, and this could lead to potential impacts on water resources.

4.17.9 Cumulative Impacts

A significant cumulative water resources impact would include a condition in which groundwater withdrawals contributed to a decline in groundwater storage in the basin. A significant cumulative impact would also include a condition in which the Project contributed to degradation of surface or groundwater quality or to increased hazard of flooding affecting the safety of people, or integrity of structures.

Geographic Scope of Cumulative Impacts Analysis for Topography, Geology and Soils

As discussed in Section 3.17, average annual precipitation in the Chuckwalla Basin is very low (3 to 8 inches per year), and there are no perennial surface water features within the proposed Project site. The area is characterized by dry washes which convey stormwater flows to Palen Dry Lake and possibly to Ford Lake during storms. Therefore, the geographic area considered for cumulative flooding, surface water and drainage, and surface water quality impacts is expected to be limited to the proposed Project area.

Groundwater

The principal cumulative impact to water resources anticipated from the proposed Project is the potential for substantial depletion of groundwater supplies such that there would be a net deficit in aquifer volume or lowering of the local groundwater table level (CEQA criterion WR-2). The largest impacts on groundwater storage among the fast-track solar projects in the region would occur during construction. The maximum cumulative impact would therefore occur if all of the projects were constructed at once. Lower construction groundwater impacts would occur if implementation of construction were staggered or if nearby projects were not constructed concurrently. Therefore, the magnitude of the cumulative impact could be mitigated to some extent by not permitting all of the projects to begin at the same time.

Referring to the groundwater budget in Table 4.17-1, it can be seen that the Chuckwalla Valley Groundwater Basin receives inflow (groundwater underflow) from the adjacent Pinto Valley and Orocopia Valley Groundwater Basins, recharge from runoff that infiltrates along the range fronts at the valley margins, and additional recharge from various other sources including irrigation return flows, and infiltration of wastewater. Figure 3.17-2 shows the geographic extent of the Chuckwalla Valley Groundwater Basin and the locations of the adjacent basins and ranges.

Most of the groundwater outflow from Chuckwalla Valley is from pumping of wells, but some groundwater flows from Chuckwalla Valley Groundwater Basin to the adjacent Palo Verde Mesa Groundwater Basin.

Groundwater moves from areas of higher groundwater elevation to lower groundwater elevation. Groundwater elevations in Chuckwalla Valley range from about 500 feet above sea level (amsl) in the western part of the basin, where the proposed Project is located, to about 270 feet amsl at the eastern edge of the basin, near its boundary with Palo Verde Mesa Basin. Regional groundwater elevations are lowest on the eastern side of Palo Verde Mesa Basin. Groundwater elevations on the western side of the Palo Verde Valley, near the boundary with the Palo Verde Mesa Basin are about 240 feet amsl.

The Colorado River flows south through the Palo Verde Valley, and water is diverted from the Colorado River to irrigate lands in both the Palo Verde Valley and in Palo Verde Mesa. Irrigation is probably the principal source of recharge to the Palo Verde Valley aquifer. Groundwater returns to the Colorado River at the southern end of the Palo Verde Valley.

Recent estimates of the water budget for the Chuckwalla Valley Basin (Table 4.17-1) suggest that storage in the Chuckwalla Valley Basin is currently increasing, because total inflows to the basin exceed outflows. As a result, groundwater levels on average in the Chuckwalla Valley Groundwater Basin must be rising. Although average groundwater levels in the basin will rise if net groundwater inflow exceeds outflow, local conditions can vary markedly.

The sustainable yield, or the amount of water that can be withdrawn over the long-term without reducing the amount in storage, depends in part on the amount of inflow from and outflow to adjacent basins, which may or may not be dependable or stable over the long term. Referring to Table 4.17-1, it can be seen that inflow from the adjacent Orocopia Valley and Pinto Valley Basins is roughly equivalent to the net increase in groundwater storage in the Chuckwalla Basin. If inflow from basins adjacent to the Chuckwalla Basin were reduced, then the sustainable yield of the

Chuckwalla Basin would be reduced and both the quantity and quality of the groundwater stored in the basin would depend on a mixture of recharge from runoff from the adjacent mountain ranges and recharge from irrigation return flows and other wastewater sources.

Surface Water and Drainage

The geographic scope of cumulative impacts on surface water and drainage is much more localized than for groundwater. Surface water flows in the region are generally intermittent and depend on the timing, intensity, and duration of precipitation and runoff. Surface water and drainage effects also tend to occur downslope or downstream of a project. Upstream projects can alter surface water conditions downstream, but the reverse is not as likely.

Water Quality

Cumulative water quality impacts are expected mainly in relation to groundwater quality. Spills or releases of contaminants are likely to have localized and temporary impacts on surface water quality in the Project region, whereas regional groundwater quality could be affected by the combined effects of multiple projects.

Flooding

Impacts on flooding tend to result from localized conditions, and cumulative impacts on flooding are likely to propagate from upstream to downstream in a watershed. The geographic scope of flooding impacts is therefore limited to the watersheds containing the Project components.

Effects of Past and Present Projects

The impacts of the proposed Project on water resources are expected to be localized, minor, and temporary (mainly occurring during construction), and are not expected to contribute substantially to cumulative impacts in conjunction with other projects or developments in the Chuckwalla Valley Basin.

Prior to development, groundwater levels in the Chuckwalla Valley Groundwater Basin were generally higher than they are now. Agricultural use during the late 1970s and 1980s caused groundwater levels to decline by as much as 130 feet in some areas of the basin, such as east of Desert Center (Eagle Crest Energy Company 2008). In the late 1980s, groundwater levels began to rise in response to reduced groundwater extraction for irrigation, and have reportedly nearly recovered to levels that existed prior to the 1970s.

Current projects near the proposed Project site include the Chuckwalla Valley and Ironwood Prisons and the Eagle Mountain Pumping Plant. The impacts on groundwater resources within the basin are already captured in the current estimates of groundwater withdrawals from the basin presented in Table 4.17-1.

As indicated in Table 4.17-1, current groundwater extraction from the Chuckwalla Valley Groundwater Basin is slightly more than 10,000 AFY and inflow to the Chuckwalla Basin currently exceeds outflow by approximately 2,500 to 3,500 AFY. As long as inflow exceeds outflow, groundwater levels are expected, on average, to continue to rise in the Chuckwalla Valley Groundwater Basin, although conditions may vary locally in response to pumping and recharge. In general, higher groundwater elevations in the Chuckwalla Valley would likely contribute to increased outflow to the adjacent Palo Verde Mesa Valley Basin. Outflow to the Palo Verde Mesa Valley Basin is currently estimated to be about 400 AFY, which is roughly equivalent to the annual rate of evaporation from Palen Dry Lake.

Projected groundwater use required for construction of the DSSF, including the Gen-Tie line and Substation, is on the order of 1,300 to 1,400 AF over the anticipated 26-month construction period, with relatively small amounts of groundwater required for operation and maintenance of the DSSF once it is built. This amount of groundwater is well within the current sustainable yield of the groundwater basin; therefore, the DSSF Project's incremental impact on groundwater conditions within the basin is not cumulatively considerable.

Foreseeable Future Projects

A list of foreseeable projects near the proposed Project site is presented in Tables 3.18-1 to 3.18-3. The geographic extent of impacts to water resources is the extent of the Chuckwalla Valley groundwater basin and Palo Verde Mesa Basin, which are shown in Figure 3.17-2.

Groundwater

Three of the foreseeable projects that are within this geographic extent account for 85 percent of the long-term water demand (see Table 4.17-3):

- Eagle Mountain Pumped Storage Project
- Palen Solar Power Project
- Genesis Solar Energy Project

Table 4.17-2 presents the groundwater demand for both construction and operation and maintenance of the major foreseeable projects and the proposed Project. Note that the construction demand is presented in AF, because the annual demand may vary. The average annual demand, in AFY, can be readily calculated by dividing the total construction demand (in AF) by the duration of the construction project (in years), and would total approximately 10,000 AFY for two years, if all of the projects were under construction simultaneously. Demand would decrease as construction of each of the projects was completed, eventually falling to the long-term operation and maintenance requirement of the combined projects.

The data in Table 4.17-2 indicate that construction water needs exceed long term operations and maintenance water needs for these projects. As noted in Section 3.17, current groundwater usage in the Chuckwalla Valley groundwater basin is approximately 5,000 to 7,000 AFY, and the basin has an estimated sustainable yield of 2,500 to 3,500 AFY. During the mid 1980s, when up to 21,000 AFY of groundwater was withdrawn from the basin, water levels declined by up to 130 feet in some areas. When groundwater pumping for irrigation was reduced, water levels quickly recovered.

Table 4.17-3
Summary of Groundwater Usage for Cumulative Project Impacts

Project Name	Map ID[1]	Construction Water Use (AF)	Construction Duration (years)	Average Annual Construction Water Use (AFY)	O&M Water Use (AFY)
Devers-Palo Verde 2 Trans-mission Line Project	D	12	3	4	0
Blythe Energy Project Trans-mission Line	F	8	2	4	0
Desert Southwest Transmission Line	G	1.2	2	0.6	
Eagle Mountain Pumped Storage Project	J	32,000	4	8,000	1,628
Palen Solar Power Project	K	1,278	3	426	300
Genesis Solar Energy Project	O	2,600	3	867	1,644
McCoy Soleil Project	N	unk	unk	unk	600
Big Maria Vista Solar Project	P	unk	unk	unk	0.2
Chuckwalla Solar I	Q	60	3	20	40
Desert Quartzite	U	27	3	9	3.8
Mule Mountain Solar Project	AC	unk	unk	unk	0.2
Paradise Valley "New Town" Develop-ment	AD	unk	unk	unk	0
Desert Sunlight Solar Farm	V	1,400	2.2	650	0.2
Totals		**1,400**		**9,981**	**4,216**

Notes: (1) Map ID refers to the locations shown on Figure 3.18-2.

If all of the foreseeable projects are implemented, additional short-term groundwater withdrawals from the Chuckwalla Valley Groundwater Basin would be on the order of 8,000 to 10,000 AFY for several years, depending on the actual start and duration of construction. This amount of withdrawal would probably result in declining groundwater levels basin-wide during the construction period and possibly substantial local declines in water levels. The short-term cumulative impacts on groundwater storage in the basin would be cumulatively considerable because the proposed cumulative withdrawals would exceed the sustainable yield of the basin although, as can be seen in Table 4.17-3, the cumulative impacts would be dominated by the withdrawals for the Eagle Mountain Pumped Storage Project.

By comparison, increased demand by residential water users and associated commercial services would be minor. It is estimated that the average household in California will use about 0.3 AFY by 2011, including both indoor and outdoor use (ConSol 2010). Actual water consumption in the Chuckwalla Basin may be lower if water use for landscaping is lower than average.

If distributed evenly over the entire 304,000 acres of the Chuckwalla Valley Basin, the cumulative withdrawals from future foreseeable projects (if implemented at the same time) would result in an average decline in water levels of about 0.3 to 0.4 foot per year. However, the actual declines would not be distributed evenly and would be greatest at the extraction wells. The decline in groundwater elevations in the western portion of the Chuckwalla Valley can be estimated based on modeling results reported by others. AECOM (2010d) estimated that a drawdown of less than 1 foot would occur within a distance of about 1 mile from the wells used for construction water supply in the proposed Project. By contrast, Eagle Crest Energy (2008) estimated that groundwater drawdown of about 6 feet would occur at a distance of about 1 mile from the pumping wells used for its project. Eagle Crest did not specify the location of its extraction wells, but it can be assumed for discussion that the Eagle Mountain Pumped Storage Project wells could be located more than 1 mile from the construction wells of the proposed Project. Interference between the two wells would therefore be less than the sum of the two drawdows, or less than 7 feet. AECOM (CEC 2010) estimated a groundwater decline of about 1 foot at a distance of 2.3 miles from the Palen Solar Project. Since the Palen Solar Project is more than 10 miles from the proposed Project, the cumulative drawdown effects of these two projects are not expected to be substantial. These are the nearest foreseeable future projects proposed for the western Chuckwalla Valley.

The long-term cumulative impacts on groundwater would be considerably less, but would exceed the estimated current net rate of increase in storage of between 2,500 to 3,500 AFY (Table 4.17-1). Overall, groundwater levels would decline during the initial construction period, and then would continue to decline at a slower rate for the long-term. Because the quantities used in the estimate of the current basin water budget are uncertain, and may vary or fluctuate over time, the rate of long-term decline might be greater or less than estimated.

The connection between the Palo Verde Mesa Basin and the Chuckwalla Valley Basin is through a narrow gap between the McCoy Mountains and the Mule Mountains. This gap is underlain by a bedrock surface at an elevation of about 320 feet amsl (Eagle Crest Energy Co. 2008). This buried bedrock surface acts as a threshold to the flow of groundwater from the Chuckwalla Valley Basin to the Palo Verde Mesa Basin. Flow to the Palo Verde Mesa Basin would be expected to decline if groundwater levels in the eastern Chuckwalla Valley Basin fall below this threshold elevation. Currently, the groundwater elevation in this boundary area is estimated to be only about 20 to 30 feet above the bedrock surface. It is estimated that only about 400 AFY of groundwater flows across this boundary into the Palo Verde Mesa Basin. Even if groundwater elevations fall significantly so that interbasin flow to the Palo Verde Mesa Basin is cut off, the effect on groundwater levels in the Palo Verde Valley beneath the Colorado River would be negligible, because groundwater recharge in those basins is mainly dependent on recharge from irrigation.

Several factors may moderate or enhance the overall cumulative impact of these projects. Pumping would not be distributed evenly across the basin, for example, and groundwater levels would likely decline more rapidly in some parts of the basin than others. Groundwater elevations at the western (upgradient) end of the basin are currently more than 200 feet higher than at the eastern end. Many of the projects, including the Genesis Solar project, are located at the eastern end of the basin, or in the western end of the Palo Verde Mesa Valley Basin, and would capture outflow from the Chuckwalla Valley that now flows into the Palo Verde Mesa Valley. Lowering water levels in the eastern Chuckwalla Basin may induce flow into the Chuckwalla Valley Basin from the Palo Verde Mesa. Lowering water levels in the western Chuckwalla Valley Basin may induce additional flows from the adjacent Orocopia Valley and Pinto Valley Basins. By increasing inflow to the Chuckwalla Valley Basin from the adjacent basins, water levels in the Chuckwalla Valley Basin may not decline as much as they otherwise would, but the cumulative effect of lowering water levels would extend to the adjacent basins.

Surface Water and Drainage

The proposed Project is not expected to contribute to a cumulative surface water and drainage impact because the Project would have little or no impact on surface water and drainage near the Project site. Furthermore, no additional impacts are expected in the same area from other known or foreseeable projects.

Water Quality

The primary impact on groundwater expected from the planned and foreseeable projects in the region is to lower groundwater levels. Most basin recharge occurs along the range fronts at the margins of the basin and consists of relatively high-quality water. Groundwater quality tends to decrease to the east, where salts have accumulated in the lower parts of the basin. Groundwater quality is relatively good in the western part of the basin, with dissolved salts generally not exceeding secondary drinking water standards. The proposed Project will have little effect on water quality by itself. However, when combined with the Eagle Mountain Pumping project, there is some potential for a decline in groundwater quality. The Eagle Mountain Pumping project will capture some of the highest-quality groundwater in the basin, representing water that is recharging the basin at the basin margin. The capture of the higher-quality water will result in a slight increase in the percentage contribution of poor-quality recharge to the basin from irrigation return flows and wastewater discharge. This impact will be greatest during the construction phase of the projects and will decrease later. However, the Eagle Mountain Pumped Storage Project would require nearly half of the estimated net basin inflow and would continue to capture a disproportionate amount of the higher-quality basin recharge. Since the proposed Project is located in the western part of the Chuckwalla Valley Basin also, it would also potentially contribute to a reduction in water quality overall. The effect is not expected to be substantial, since the percentage of overall groundwater recharge represented by lower-quality sources would continue to be small.

Flooding

The proposed Project is expected to result in a minor increase in runoff caused by reduced infiltration of stormwater because of the effects of soil compaction. The proposed 1,200-acre Eagle Mountain Soleil Project is the only other nearby foreseeable project with a potential to contribute to similar reductions in stormwater infiltration. The Desert Lily Soleil Project would involve about one-fourth the land area of the proposed Project and is not upstream or downstream of the proposed Project. Therefore, the cumulative impacts on flooding resulting from the combined project are expected to be dispersed and minor.

Overall Conclusion

Cumulative impacts to water resources from current projects, the proposed Project and foreseeable projects in the Chuckwalla Valley Groundwater Basin are cumulatively considerable because the foreseeable projects would result in long-term overdraft of the Chuckwalla Valley Basin aquifer and a gradual decline in groundwater elevations over time. Average drawdowns would be on the order of 0.3 to 0.4 foot per year, but local drawdowns would be greater. It has been estimated that the cumulative long-term drawdown in the vicinity of the proposed Project would be on the order of 6 to 7 feet (Eagle Crest Energy Co. 2009). The contribution to this impact from the proposed Project is relatively small, however. Most of the expected drawdown will result from pumping by the Eagle Mountain Pumped Storage Project.

In addition to lowering the groundwater table in the basin and reducing the amount of water in storage, outflow from the Chuckwalla Valley Basin to the Palo Verde Mesa Basin would be reduced.

An indirect results of groundwater declines might include degradation of groundwater quality and increased cost of future pumping. Neither of these impacts is expected to be substantial.

Other impacts, such as on flooding or surface water quality, would not be cumulatively substantial.

4.18 OTHER REQUIREMENTS

The BLM NEPA Handbook (H-1790-1 Sec. 9.2.9), the NEPA Guidelines (40 CFR 1502.16), and CEQA Guidelines Section 15126.2 require a discussion of the following for implementation of the proposed Project or one of the action alternatives: the unavoidable adverse effects (NEPA) (known as significant environmental effects which cannot be avoided under CEQA); any irreversible or irretrievable commitments of resources which would be caused by the Project; the relationship between short-term uses and long-term productivity of the environment; and any growth-inducing impacts.

4.18.1 Unavoidable Adverse Effects

The analysis contained in Sections 4.2 through 4.17 indicates that the potential environmental effects from implementation of the proposed Project would cause significant impacts, although most of those can be reduced to a level that is below significant with mitigation measures. However, there are some impacts that cannot be reduced to less than significant and are unavoidable. These are summarized here.

Air Resources

On-site construction activities and construction-related traffic for the Solar Farm (either Layout B or C) would produce ozone precursor emissions (reactive organic compounds and nitrogen oxides) and particulate matter emissions (PM_{10} and $PM_{2.5}$) that exceed SCAQMD regional emissions significance thresholds. Mitigation measures would reduce these emissions somewhat, but would not reduce emissions to a level less than the SCAQMD regional emissions significance thresholds. Consequently, construction-related emissions for the Solar Farm would be an unavoidable significant air quality impact under all action alternatives (Alternatives 1, 2, and 3).

Cultural Resources

At this point in time, it is unknown if impacts on cultural resources can be satisfactorily mitigated to less than significant. The Programmatic Agreement (PA) and consultations are still in progress, as are NRHP-eligibility evaluations, treatment protocols, and CRHR-eligibility recommendation concurrence. Consultations may raise issues that cannot be resolved through mitigation measures. Prescribed treatments may resolve adverse effects under Section 106, however given the scale and potential significance of several of the resources identified, impacts under NEPA may remain significant despite Section 106 mitigation measures. As such, the identified impacts of construction, operation, and decommissioning of all action alternatives are considered unavoidable significant impacts.

Visual Resources

Operation and maintenance of Alternatives 1, 2, and 3 would result in long-term significant and unavoidable permanent adverse impacts on scenic vistas, visual character/quality (local setting); artificial light; and local plans, policies, and regulations. Also, operation and maintenance of Alternatives 1, 2, and 3 is incompatible with Riverside County General Plan policies.

Alternatives 1, 2, and 3 would transform the relatively natural desert landscape into a developed site with an industrial facility. The site would no longer be covered with desert vegetation. The openness of the site would be reduced because of the presence of buildings and structures. Even though night lighting would be limited, artificial lighting would be introduced to the area, thereby decreasing nighttime darkness. Because this area is highly valued for its nighttime darkness, additional nighttime light would be visible. There would be a high degree of contrast between the relatively undeveloped valley and the highly developed Project area. The intensity of adverse impacts would be reduced with implementation of mitigation measures described in Section 4.16; however not all impacts would not be reduced to less than significant because the size, composition, style, color, and location of Project components would still be a conspicuous element of the landscape.

4.18.2 Irreversible and Irretrievable Commitments of Resources

NEPA and CEQA require that the discussion in an EIS or EIR include identifying any irreversible or irretrievable commitments of resources which would be caused by the proposal should it be implemented. A resource commitment is considered irreversible when direct and indirect effects from its use limit future use options. Irreversible commitments apply primarily to nonrenewable resources, such as cultural resources and also to those resources that are renewable only over a long period of time such as soil productivity or forest health. A resource commitment is considered irretrievable when the use or consumption of the resource is neither renewable nor recoverable for future use. Irretrievable commitments apply to loss of production or use of natural resources.

As discussed in Section 4.18.1 (Unavoidable Adverse Effects), construction and operation of the proposed Solar Farm under Alternatives 1, 2, and 3 would detract from the local setting because the Solar Farm would completely transform the relatively natural site into a developed site with an industrial facility. In addition, the Gen-Tie Line and Red Bluff Substation (including the tower at the Desert Center Communications Site) would result in a long-term change to the views in the project area.

Implementation of the proposed Project would require the permanent loss of approximately 4,400 acres (approximately 3,200 for Alternative 3) of vegetation and habitat. Assuming that the mitigation measures for biological resources required in this EIS are implemented, project-induced loss of vegetation and habitat would be less than significant. Nevertheless, the area needed for the Project would no longer be available for other uses, as might be allowed by the BLM. This is considered an irretrievable commitment of a resource.

All of the cultural resources sites within the permanent disturbance area of the Project would be directly affected, resulting in a loss of information about history and prehistory, and degrading the preservation value of these resources. These sites include sites that contribute to the potential DTC-CAMA Historic District as well as the North Chuckwalla Petroglyph District. As such, the whole of these districts would be similarly affected by the Project. Even with mitigation measures, this is considered an irretrievable commitment of resources.

4.18.3 Relationship Between Short-Term Uses and Long-Term Productivity of the Environment

NEPA also requires consideration of long-term impacts and the effect of foreclosing future options, that is, whether implementation of the proposed Project and its short-term use would sacrifice a resource that might benefit the environment in the long term should be analyzed. Discussion of the relationship between short-term uses of the environment and long-term productivity of the environment associated with implementation of the proposed Project is discussed below.

For purposes of this analysis, short-term refers to the period of time during which the proposed Project is under construction and long-term refers to the period of time after construction during which impacts from the proposed Project may still affect the environment. Implementing the proposed Project would result in the temporary loss of some resources, such as approximately 110 acres of temporary vegetation removal and habitat disturbance (for Gen-Tie Line and Red Bluff Substation; all disturbance associated with the Solar Farm is considered permanent). Temporary disturbance includes short-term impacts associated with construction, such as temporary access roads, staging areas, and trenching. Temporary and permanent habitat loss, as well as disturbance caused by construction activities, could disrupt wildlife, including sensitive wildlife species. Other short-term impacts include noise levels during construction and air quality impacts. Longer term impacts include the permanent loss of visual character/quality of the proposed Project area and the permanent loss of approximately 4,400 acres of vegetation and habitat with the introduction of the Solar Farm, Gen-Tie Line, Red Bluff Substation, and associated structures.

The alternative Desert Sunlight projects represent a trade-off between direct short term unavoidable adverse criteria pollutant emissions during facility construction and indirect long-term greenhouse gas emission reductions during project operations. Indirect climate change benefits would occur in terms of greenhouse gas emissions avoided by displacing alternative power generation sources (which include fossil fuel combustion sources) with solar energy sources.

Other than the significant and unavoidable impacts described in Section 4.18.1, there would be no permanent loss of the overall productivity of the environment from the implementation of the proposed Project.

4.18.4 Growth-Inducing Effects

Section 15126.2 (d) of the CEQA Guidelines requires the evaluation of economic, population, or housing growth in the surrounding environment with implementation of the proposed Project. Induced growth is growth that exceeds planned growth in the surrounding area and that results from new development that would not have taken place if the proposed Project had not been implemented. CEQA requires a discussion of the ways in which a proposed project may foster economic or population growth, or the construction of additional housing (directly or indirectly) in the surrounding environment. The discussion must also address how a proposed project may remove obstacles to growth, or encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. Typically, the growth-inducing potential of a project would be considered significant if it fosters growth or a concentration of population above what is assumed in local and regional land use plans, or in projections made by regional planning authorities. Significant growth impacts could also occur if a project provides infrastructure or service capacity to accommodate growth levels beyond those permitted by local or regional plans and policies.

Growth Caused by Direct and Indirect Employment

As discussed in Section 4.13, the majority of the Project construction workforce would be employed by residents of Riverside County. The Solar Farm construction workforce is expected to average approximately 350 to 400 craft workers over the 26-month construction period, with a peak on-site craft workforce of approximately 500 craft workers during Months 5 through 16 of the construction period. In addition to craft workers, an average of 40 management and non-craft employees are expected on site. This equates to an average of 390 to 440 and a peak of 540 total on-site workers for the Solar Farm construction. The construction workforce would be recruited from within Riverside County and elsewhere in the surrounding region as much as practicable.

For the Gen-Tie Line, the workforce is expected to average 25 employees over the 20-month Gen-Tie construction period, with a peak of approximately 60 employees. Employment of construction personnel would be beneficial to local businesses in adjacent communities through increased expenditure of wages for goods and services.

For Red Bluff Substation, a total workforce of 280 would be required for all of the substation components, with an average of 25 personnel on-site each day. The workforce would be contracted or derived from SCE construction crews, and, therefore, would generate minimal additional construction employment when compared to the income and employment region of influence (ROI).

The peak level of employment for construction of these facilities would represent about 0.78 percent of construction employment in Riverside County. Because the number of construction workers required represents such a small portion of the regional available labor force, it is assumed that minimal population in-migration would occur as a result of construction activities associated with the proposed Project. Therefore, notable impacts would not occur to existing population levels or employment distribution within the study area from the proposed Project.

For all project components, 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 purchase food, beverages, and other commodities, which would provide economic benefit to the local economy.

Operation and maintenance of the Solar Farm would employ between 10 and 15 full time employees in shifts, which would be a socioeconomic benefit that would not generate population growth in Riverside County beyond the capacity of available housing or public services and facilities. There would be no new operations workforce associated with the Gen-Tie Line. No additional employment would occur for the operation and maintenance of the Red Bluff Substation and its associated components, including the telecom site.

The proposed Project would not involve the development of additional housing or result in direct population growth. There is a slight chance that because the operation and maintenance of the proposed Project would employ between 10 and 15 workers long-term, some economic and population growth could be gained if unemployed workers in the surrounding area were to become employed in the operation and maintenance of the proposed Project or if the 10 to 15 workers were to leave jobs to work at the Solar Farm, opening their current jobs to other workers. The small number of permanent employees would not have a significant economic growth-inducing impact on the surrounding environment.

Growth Related to Provision of Additional Electric Power

As described in Chapter 1, the primary purpose and need, and objectives for the proposed Project are to:

- The BLM's purpose and need for the Proposed Action is to respond to Sunlight's application under Title V of the FLPMA (43 USC 1761) for a ROW grant to construct, operate, maintain, and decommission a utility-scale 550-MW PV solar energy facility (Solar Farm), Gen-Tie Line, and a 500/220-kV substation on public lands in compliance with FLPMA, BLM ROW regulations, and other applicable federal laws. The BLM will decide whether to approve, approve with modifications, or deny issuance of a ROW grant to Sunlight for the proposed DSSF Project and the related assignment of any ROW grant for the substation to SCE. The BLM's actions will also include concurrent consideration of amending the CDCA Plan of 1980, as amended;
- The DOE's purpose and need for agency action is to comply with its mandate under EPAct 2005 by selecting eligible projects that meet the goals of the act;
- Sunlight's fundamental objective for the Project is to construct, operate, maintain and eventually decommission a 550-MW PV energy facility and associated interconnection transmission infrastructure, and to facilitate SCE's construction and operation of a substation in order to provide renewable electric power to California's existing transmission grid to help meet federal and state renewable energy supply and GHG emissions reduction requirements; and
- SCE's primary objectives are to (1) respond to interconnection requests as part of the LGIP from generators in the Desert Center area by constructing a substation to interconnect with the DPV 500-kV transmission line, and (2) provide safe and reliable electrical service consistent with the North American Electric Reliability Corporation (NERC), Federal Energy Regulatory Commission (FERC), CAISO, and SCE's planning design guidelines and criteria.

As such, the Project is not intended to supply power-related to growth for any particular development, either directly or indirectly, and would not result in direct growth-inducing impacts. However, the proposed Project could facilitate growth indirectly through the additional generation of electric power in the Southern California region. By increasing power generation in Southern California, the proposed Project could be considered growth-inducing. However, in general, Southern California and, in particular, Riverside County has experienced rapid population growth over the last 20 years. Growth is expected to continue with or without implementation of the proposed Project. Therefore, implementation of the proposed Project would be in response to anticipated future load growth and would be consistent with current regional planning projections.