

Environmental Assessment
RE Cinco Gen-Tie Project



BLM Case File Number CACA-053735

Ridgecrest Field Office
California Desert District
Ridgecrest, California

November 2014



Environmental Assessment

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Ridgecrest Field Office

Bureau of Land Management

Ridgecrest, California

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Acronyms and Other Abbreviations

AB	Authorized Biologist
ACEC	Area of Critical Environmental Concern
APE	area of potential effects
Applicant	RE Barren Ridge Solar 1, LLC
BA	Biological Assessment
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BM	Biological Monitor
BMP	best management practice
BR RTP	Barren Ridge Renewable Transmission Project
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDCA	California Desert Conservation Area
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNPS	California Native Plant Society
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide-equivalent
CPUC	California Public Utilities Commission
dBA	A-weighted decibel
DOD	Department of Defense
DWR	California Department of Water Resources
EA	Environmental Assessment
EIR	Environmental Impact Report
EKAPCD	Eastern Kern Air Pollution Control District
EO	Executive Order
ESA	Federal Endangered Species Act
FEMA	Federal Emergency Management Agency
FLPMA	Federal Land Policy and Management Act of 1976
gen-tie	generator intertie line
GHG	Greenhouse gas
GIS	geographic information systems
HU	Hydrologic Unit
KOP	key observation point
kV	kilovolt
LADWP	Los Angeles Department of Water and Power
MBTA	Migratory Bird Treaty Act
MDAB	Mojave Desert Air Basin
MW	megawatt
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places

O&M	operations and maintenance
OHV	off-highway vehicle
PEIS	Programmatic Environmental Impact Statement
PM ₁₀	particulate matter up to 10 micrometers in diameter
PV	photovoltaic
ROD	Record of Decision
ROW	right-of-way
SHPO	State Historic Preservation Office
SOP	standard operating procedure
SR	State Route
SSC	Species of Special Concern
T&E	threatened and endangered
USACE	U.S. Army Corps of Engineers
USC	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VRM	Visual Resource Management
WEAP	Worker Environmental Awareness Program

1. INTRODUCTION

1.1 Project Overview

RE Barren Ridge Solar 1, LLC (Applicant), a subsidiary of Recurrent Energy LLC, proposes to construct and operate the RE Cinco Gen-tie, an electrical generator intertie line (gen-tie) that would be located partially on Federal lands managed by the Bureau of Land Management (BLM) within the California Desert Conservation Area (CDCA) planning area. The proposed gen-tie would interconnect a Kern County-approved 60 megawatt (MW) solar photovoltaic (PV) power generating facility (solar facility) located on private lands in an unincorporated area of Kern County, California, to the regional electrical grid. Together, the planned solar facility and the proposed gen-tie line are known as the RE Cinco Project (project).

The proposed gen-tie would be a 230-kilovolt (kV) line to convey the power generated from the planned solar facility on private lands to the electric grid at the existing Los Angeles Department of Water and Power's (LADWP) Barren Ridge Switching Station. The switching station is located approximately 2 miles north of the planned solar facility site. The alignment for the gen-tie could cross a mix of public and/or private lands. In addition to the BLM preferred alignment, two additional alternative alignments are analyzed in this Environmental Assessment (EA). The Applicant filed a right-of-way (ROW) grant application, serialized as CACA 53735, with the BLM to construct, operate, maintain, and decommission the gen-tie. As part of the ROW grant application process, the Applicant submitted a Plan of Development for the project to the BLM on May 10, 2012, followed by several revisions of the Plan of Development to clarify the range of alternatives evaluated. Because all public lands within the action alternatives lie within a BLM utility corridor identified in the CDCA land use plan (BLM 1980, 1999) and within an energy corridor designated under Section 368 of the Energy Policy Act of 2005, no land use plan amendment is required. A Utility Corridor Conflict Analysis was prepared, and it shows that no conflicts with existing rights within the corridor would occur, and that future use of the corridor for other utility uses would not be impaired.

1.2 Project Location and Area Overview

The gen-tie would be located in unincorporated southeastern Kern County, approximately 6.5 miles northwest of the community of California City, approximately 12 miles northeast of the community of Mojave, and approximately 0.8 mile east of the Los Angeles Aqueduct. Figure 1-1 provides a regional location map; Figure 1-2 shows a local area topographic map; and Figure 1-3 shows an aerial view of the project area, with notable features labeled.

The RE Cinco Project area is composed of two principal components, as described more fully later in this document: (1) the solar facility site, which is located solely on private lands in Section 25, Township 31 South, Range 36 East (Mount Diablo Meridian, California), and (2) a linear gen-tie alignment that would travel from the solar facility site to the LADWP Barren



Source: RE Cinco 2013; AECOM 2013; Sources: Esri, DeLorme, HERE, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom

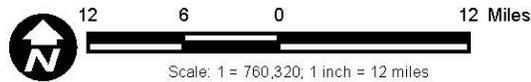
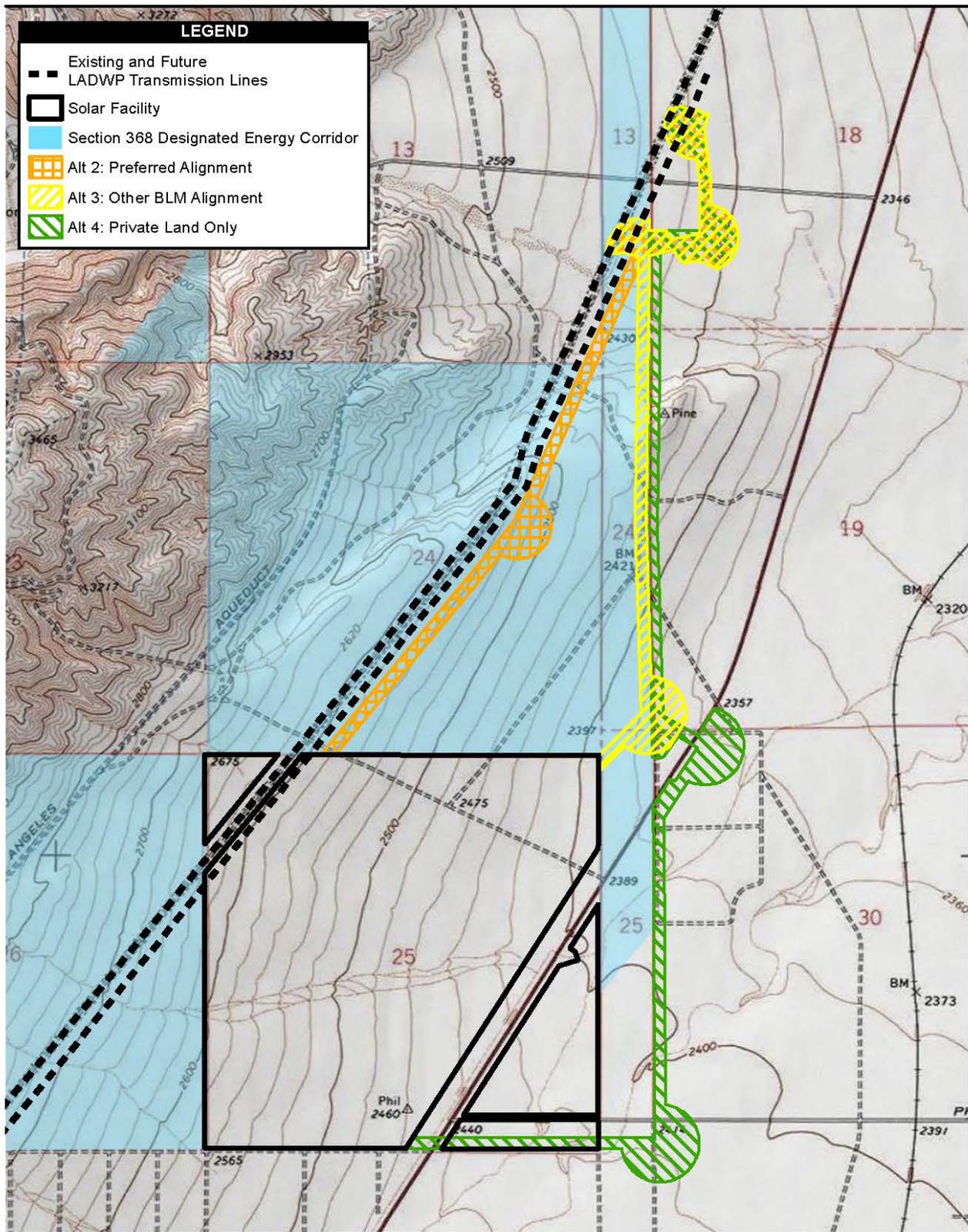


Figure 1-1
Regional Location Map



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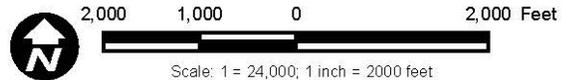


Figure 1-2
Topographic Vicinity Map

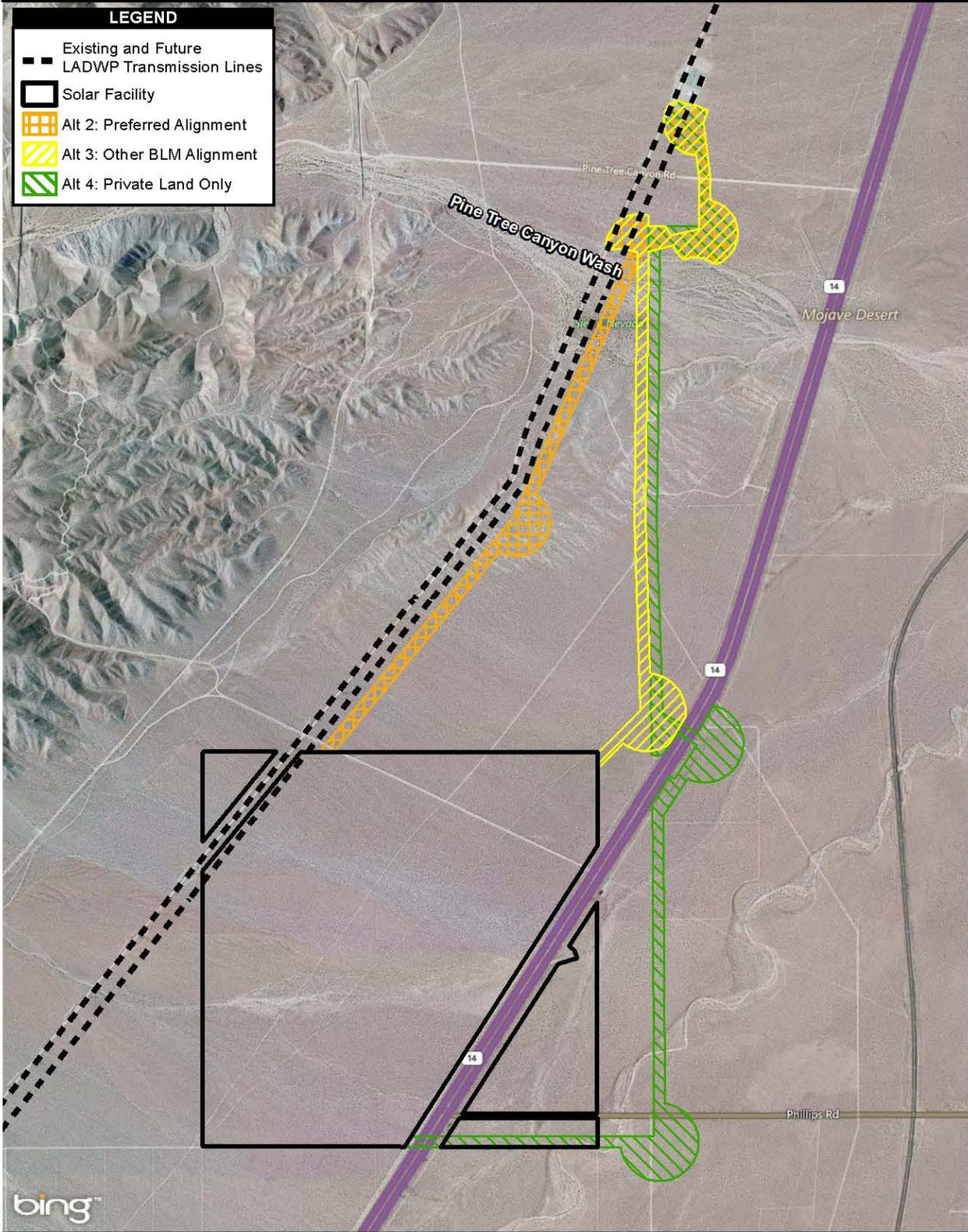


Figure 1-3
Aerial Vicinity Photograph

Ridge Switching Station. This EA analyzes three action alternative gen-tie alignments. The alternative alignments are shown in Figure 1-4a and Figure 1-4b, are described in detail in Chapter 2. Each of the alternative gen-tie alignments is located within the U.S. Geological Survey (USGS) Mojave NE 7.5-minute quadrangle.

Figure 1-5 shows the land ownership status of the project area and surrounding lands. As shown, the approved solar facility is located entirely on private lands. The gen-tie alternative alignments are composed of public and/or private lands, depending on the alternative. The southeast corner of the private parcel on which the solar facility would be sited is diagonally traversed by California State Route (SR) 14, which lies within a California Department of Transportation (Caltrans) ROW that is approximately 410 feet in width. The northwestern corner of the parcel is diagonally traversed by several electric transmission line ROWs, one of which is occupied by the Bonneville Power Administration's and LADWP's Pacific Direct Current Intertie 500-kV transmission line and LADWP's existing 230-kV Barren Ridge–Rinaldi transmission line. This ROW currently contains these two transmission lines and a service road, and is 250 feet in width. An adjacent 200-foot-wide ROW has been granted by the BLM to LADWP for the planned 230-kV Barren Ridge Renewable Transmission Project (BRRTP), which is scheduled for construction beginning in 2015.

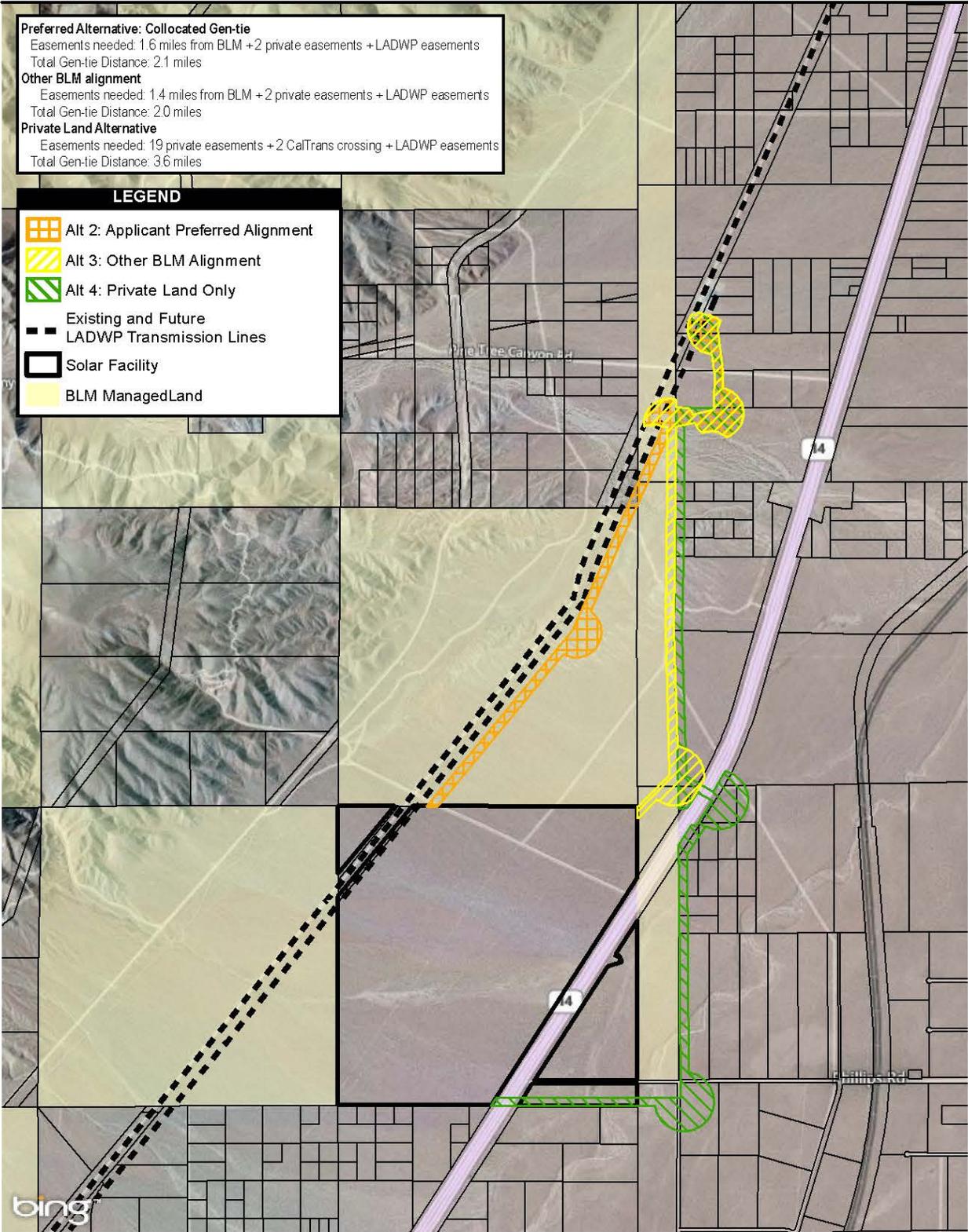
With the exception of the aforementioned SR-14 and LADWP transmission lines/facilities, the entire area within and around the solar facility site and the gen-tie alternative alignments is undeveloped land; no residences, outbuildings, or similar structures are present in the area. A number of open designated but unimproved BLM routes pass through the area under consideration for the alternative gen-tie alignments.

1.3 BLM Purpose and Need

In accordance with the Federal Land Policy and Management Act of 1976 (FLPMA) Section 103(c), public lands are to be managed for multiple uses, taking into account the long-term needs of future generations for renewable and non-renewable resources. The Secretary of the Interior is authorized to grant ROWs on public lands for systems for generation, transmission, and distribution of electric energy (Section 501[a][4]). Taking into account BLM's multiple-use mandate, the purpose of and need for this action is to respond to a FLPMA ROW application submitted by RE Barren Ridge Solar 1, LLC, to construct, operate, maintain, and decommission a gen-tie transmission line on public lands administered by the BLM in compliance with the FLPMA, BLM ROW regulations, and other applicable Federal laws and policies.

In conjunction with the FLPMA, the BLM's applicable authorities are as follows:

- Executive Order 13212, dated May 18, 2001, which mandates that agencies act expeditiously and in a manner consistent with applicable laws to increase the production and transmission of energy in a safe and environmentally sound manner.



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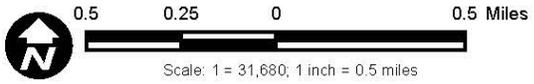
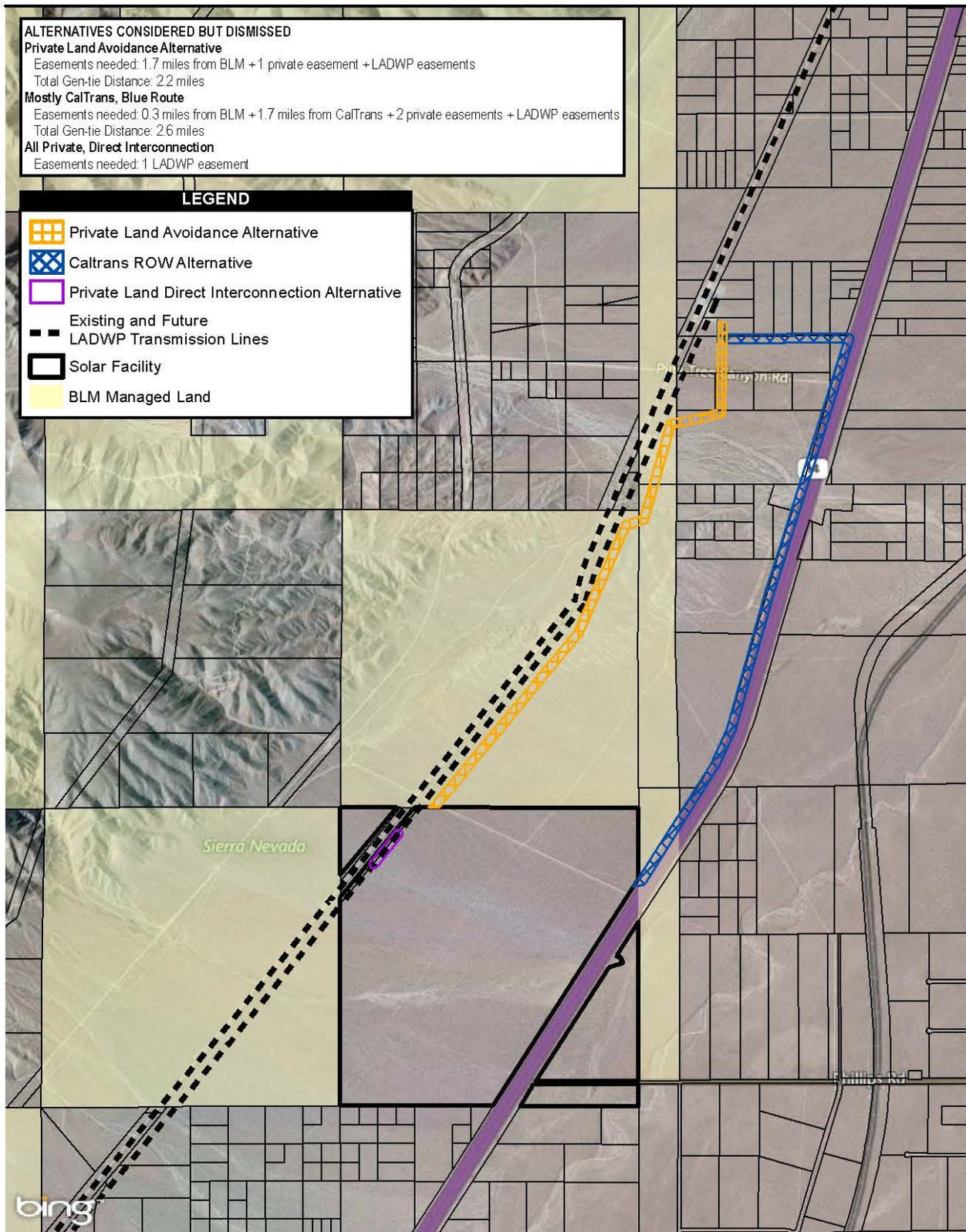


Figure 1-4A
Alternatives

Cinco Gen-Tie Project – Environmental Assessment

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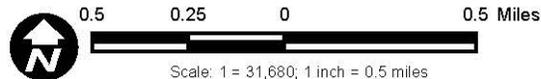
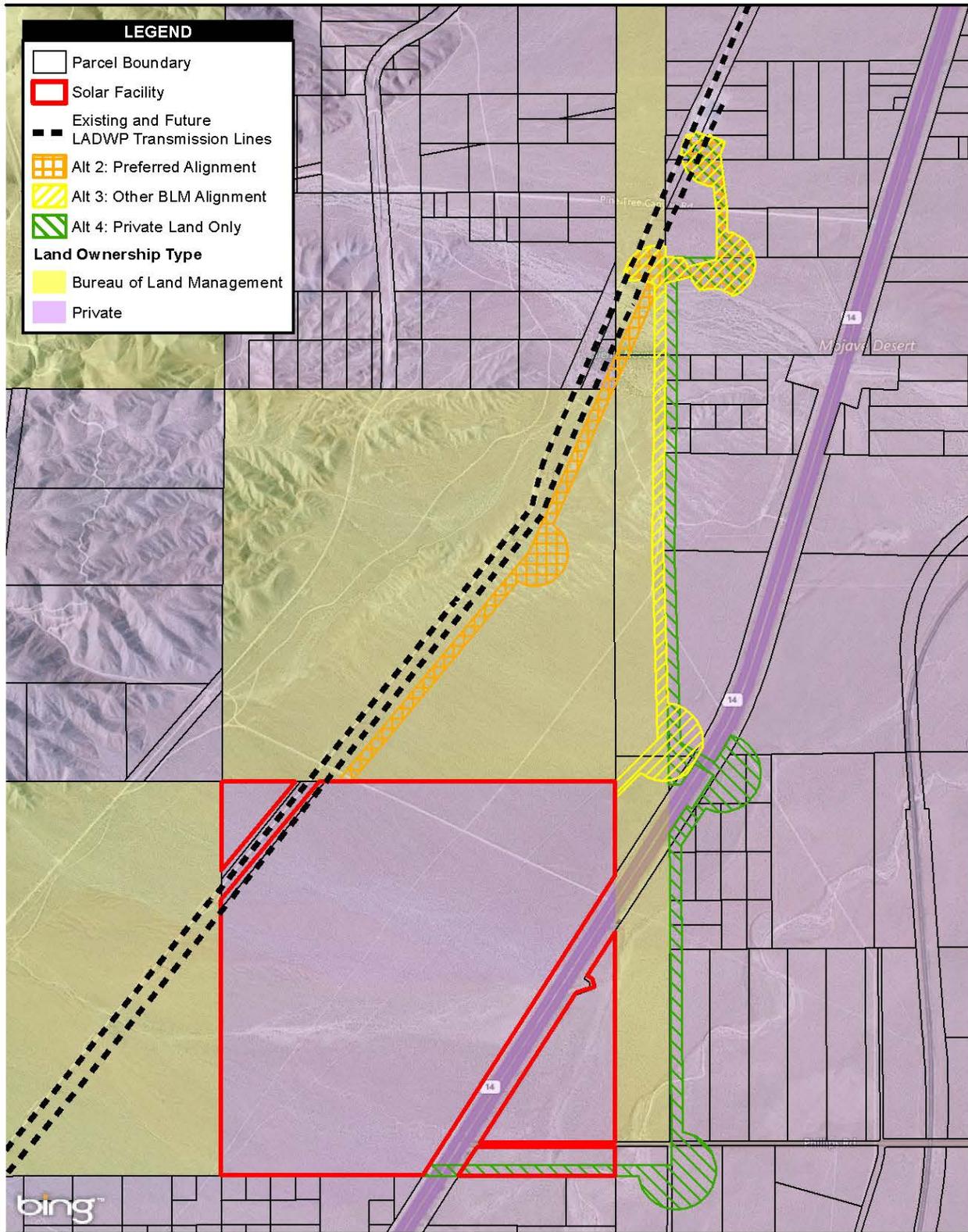


Figure 1-4B
Dismissed Alternatives



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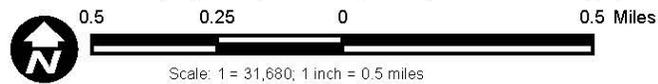


Figure 1-5
Land Ownership

- Secretarial Order 3285A1, dated February 22, 2010, which establishes the development of renewable energy as a priority for the Department of the Interior.

1.4 Decision to be Made by the BLM

The BLM will decide whether to deny the proposed ROW, grant the ROW, or grant the ROW with modifications. The BLM may include terms, conditions, and stipulations it determines to be in the public interest, which may include modifying the proposed use or changing the route or location of the proposed facilities (43 Code of Federal Regulations [CFR] 2805.10[a][1]). If the BLM approves the ROW, the approval will include the gen-tie route and the approved design option. The BLM will also decide whether to approve, approve with modifications, or disapprove a Pesticide Use Proposal that would authorize use of specified herbicides on BLM lands within the project area, consistent with applicable regulations.

1.5 Issue Scoping

External scoping is optional for EA-level analysis (40 CFR 1501.7). BLM policy allows a decision-maker to determine the need for and level of scoping to be conducted for an EA (BLM 2008: Section 8.3.3). In this case, the proposed project was the subject of a comprehensive public review process in 2011, as described below. The project area was designated as an energy corridor in 1980 as part of the CDCA Plan. Inclusion of the project area within a Section 368 energy corridor was assessed in a Programmatic Environmental Impact Statement (PEIS) between 2005 and 2009, also described below. The preparation and circulation of the PEIS, and the eventual selection of designated energy corridors, were the subjects of substantial scoping and public involvement processes.

Previous Environmental Analysis and Public Outreach

Kern County Environmental Impact Report

Kern County evaluated a private lands solar project and a connecting gen-tie in 2011 in an Environmental Impact Report (EIR) prepared in accordance with the California Environmental Quality Act (CEQA) (Kern County 2011a). The document was circulated for public comment for 45 days, as required by CEQA. The EIR was certified and the project was approved by the Kern County Board of Supervisors in October 2011. As part of that approval, Kern County approved a Conditional Use Permit for the private lands solar facility. For CEQA purposes, the environmental impacts of the gen-tie line were evaluated in Kern County's EIR as part of the project, although no discretionary permits are required for the construction and operation of a private gen-tie line on land zoned for Agriculture in Kern County.

West-Wide Energy Corridor Programmatic Environmental Impact Statement

In Section 368 of the Energy Policy Act of 2005 (Public Law 109-58), Congress directed the Secretaries of the Departments of Agriculture, Commerce, Defense, Energy, and the Interior to do the following:

- Designate, under their respective authorities, corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on Federal land in 11 Western States.
- Perform any environmental reviews that may be required to complete the designation of such corridors.
- Incorporate the designated corridors into the relevant agency land use and resource management plans. Ensure that additional corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on Federal land were identified and designated as necessary.
- Expedite applications to construct or modify oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities within such corridors.

Congress further directed the Secretaries to take into account the need for upgraded and new electricity transmission and distribution facilities to improve reliability, relieve congestion, and enhance the capability of the national grid to deliver electricity. Congress specified that Section 368 corridors should specify the centerline, width, and compatible uses of the corridors.

Shortly after the enactment of the Energy Policy Act, the BLM, in cooperation with the Department of Energy, the U.S. Forest Service, the U.S. Fish and Wildlife Service (USFWS), and the Department of Defense (DOD), began preparation of a PEIS that evaluated potential energy corridors in the western United States. A large-scale public scoping and outreach process was undertaken as part of that effort, and included direct coordination with State, local, and Native American tribal governments. Following circulation of the PEIS, a Record of Decision (ROD) was adopted in 2009, and the proposed resource management plan amendments to designate the corridors were adopted.

On July 7, 2009, multiple organizations filed a Complaint in the *Wilderness Society, et al. v. United States Department of the Interior, et al.*, No. 3:09-cv-03048-JW (N.D. Cal.). The plaintiffs raised a variety of challenges in response to the agencies' ROD.

In July 2012, the BLM, U.S. Forest Service, and Department of Energy entered into a settlement agreement with the plaintiffs. In accordance with the settlement agreement, the BLM issued internal guidance in April 2014 on management and use of Section 368 Corridors (Instruction Memorandum No. 2014-080).

All of the public lands that would be used by the alternative gen-tie alignments assessed in this EA are located within a designated Section 368 Corridor (23-106 Corridor). The 23-106 Corridor was identified as a "corridor of concern" in the July 2012 settlement agreement. Additional information concerning this corridor can be found in Section 3.22.2.

Programmatic Environmental Impact Statement for Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States

In 2005, the BLM prepared a PEIS to comprehensively evaluate the use of chemical herbicides in various vegetation management programs related to hazardous fuel reduction, invasive plant management, noxious weeds, and resource rehabilitation following wildfires and other disturbances. The PEIS evaluated programs in 17 western states and assessed the following actions:

- The approval of four new herbicide formulations on public lands.
- The continuation/discontinuation of use of 20 herbicide formulations then in use on public lands.
- The development of protocols to add new Environmental Protection Agency-registered chemical formulations to the list of herbicides approved for use on public lands.
- Identification of best management practices (BMPs) to be used during vegetation management treatments.

The BLM issued a Notice of Availability of the Draft PEIS on November 10, 2005. The BLM held 10 public hearings in late 2005, and extended the public comment period an additional 30 days to February 10, 2006. The BLM responded to more than 3,000 individual public comments during the Draft PEIS public review period. The Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (Vegetation Treatment PEIS) was released on June 29, 2007, and a ROD was issued on October 5, 2007 (BLM 2007), which allows the use of BLM-approved herbicides on BLM-administered lands after site-specific National Environmental Policy Act (NEPA) analysis is conducted.

1.5.1 Pre-Application Meeting with Tribes and Interested Parties

The BLM hosted a pre-application meeting for the proposed project with Native American tribal representatives and other interested parties at the Jawbone Station Visitor's Center on March 24, 2014. Invitation letters to this meeting are included as Appendix A. Participants included representatives from Native American tribes, USFWS, Caltrans, and the Cantil Water District. Issues raised during the meeting included the following:

- Caltrans ROW concerns and requirements relating to SR-14.
- Native American participation during project development, cultural resources surveys, and construction.
- Desert tortoise protection and conservation activities associated with the project.

1.6 Policy Consistency and Land Use Plan Conformance

1.6.1 Federal Land Policy and Management Act of 1976

In accordance with Section 103(c) of the FLPMA, as amended, public lands are to be managed for multiple uses that takes into account the long-term needs of future generations for renewable and non-renewable resources. The Secretary of the Interior is authorized to grant ROWs on public lands for the construction and operation of infrastructure used in the generation, transmission, and distribution of electric energy (Section 501[a][4]).

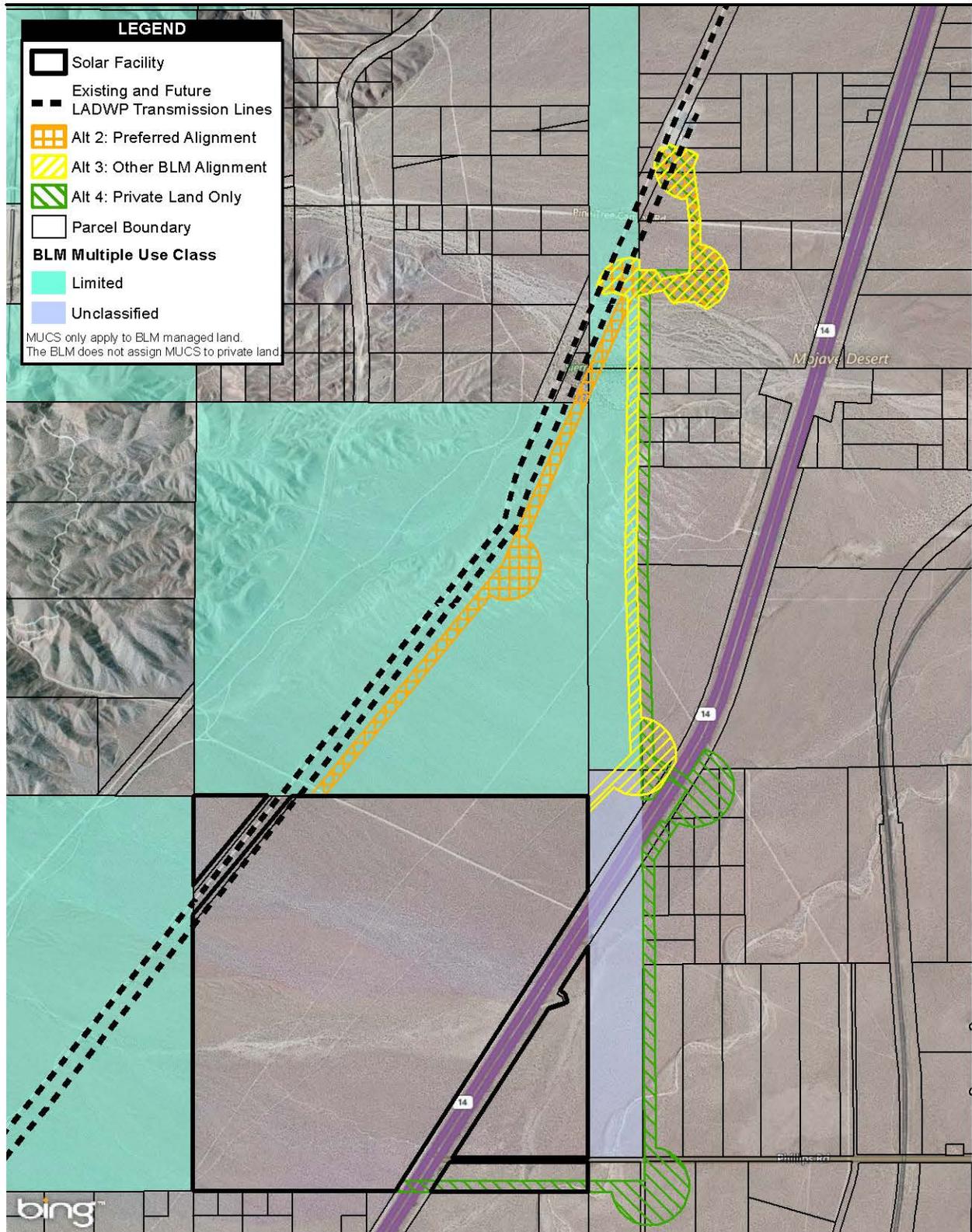
1.6.2 California Desert Conservation Area Plan

The CDCA Plan (BLM 1980) is the Land Use Plan for the public lands in and around the project area. The CDCA Plan is a comprehensive, long-range plan that was adopted in 1980; it since has been amended multiple times (BLM 1999, 2006). The CDCA is a 25-million-acre planning area that contains more than 12 million acres of BLM-administered public lands in the California desert.

The CDCA Plan provides guidance addressing the management, use, development, and protection of the public lands and associated resources within the CDCA. It is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality. The CDCA Plan's goals and actions for each resource are established in its 12 elements, each of which provides both a desert-wide perspective of the planning decisions for one major resource or issue of public concern, and a more specific interpretation of multiple-use class guidelines for a given resource and its associated activities.

The public lands that would be crossed by the action alternative alignments have been classified by the BLM as Multiple Use Class "L" or "Limited Use" lands. Figure 1-6 shows the BLM land use classifications for public lands in the project area. Private lands are not classified. According to the CDCA Plan, Multiple-Use Class L protects sensitive, natural, scenic, ecological, and cultural resource values, and provides for lands to be managed generally with lower-intensity, carefully controlled multiple use of resources while ensuring that sensitive values are not significantly diminished. The CDCA Plan provides that new electric transmission facilities can be allowed within Class L lands if they are located within designated transmission corridors after requirements of NEPA have been met. Energy corridor designations have been applied to certain Federal lands where the construction, operation, or upgrade of one or more energy transport projects is preferred.

The BLM-managed lands that would be used by the proposed gen-tie alternatives are located entirely within a designated utility corridor. The corridor was first designated as "Corridor A" in the original CDCA Plan. Corridor A was designated to be 2 miles in width, running from the Los Angeles area north toward Ridgecrest and beyond to the Owens River Valley. The area was again designated as "Corridor 23-106" as part of the Section 368 energy corridor designation



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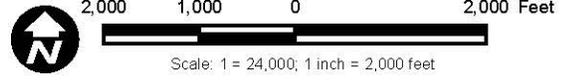


Figure 1-6
BLM Multiple Use Class

process (BLM 2009). Corridor 23-106 follows portions on the originally designated Corridor A, including those portions of the corridor that pass through the project area. The Section 368 corridor is also 2 miles in width. Figure 1-6 shows the public land sections in the project area that were included in the Corridor 23-106 designation.

The CDCA Plan also provides that noxious weed eradication via chemical control may be allowed on Class L lands after site-specific planning. Types and uses of pesticides, in particular herbicides, must conform to Federal, State, and local regulations. Any proposal to implement mechanical means for weed control would require an amendment to the CDCA Plan. Mechanical weed control is not proposed for the project.

According to the CDCA Plan, a Plan Amendment is not required for the approval of projects sited on Class L lands that satisfy Multiple Use Class Guidelines. The proposed gen-tie line would satisfy the Multiple Use Class Guidelines, as demonstrated in Table 1-1.

1.6.3 Desert Renewable Energy Conservation Plan

The California Desert Renewable Energy Conservation Plan is a Natural Community Conservation Plan, Habitat Conservation Plan, and BLM Land Use Plan Amendment being developed by a joint Federal and State Renewable Energy Action Team to provide for effective protection and conservation of desert ecosystems while allowing for the appropriate development of renewable energy projects. The draft for the California Desert Renewable Energy Conservation Plan (BLM 2014) was published in September 2014, and included a draft amendment to the CDCA Plan. The Draft California Desert Renewable Energy Conservation Plan does not propose any changes to transmission corridors on BLM-managed land.

Table 1-1. Multiple Use Class Guidelines Consistency – Class L Lands			
Land Use Activities	Multiple-Use Class L – Limited Use	Consistency of Proposed Action	Applicable Environmental Assessment Section
1. Agriculture	Agricultural uses (excluding livestock grazing) are not allowed.	Not applicable. Agriculture is not proposed.	Section 3.1.1
2. Air Quality	These areas are managed to protect their air quality and visibility in accordance with Class II objectives of Part C of the Clean Air Act Amendments, unless otherwise designated another class by the State of California as a result of recommendations developed by any Bureau of Land Management (BLM) air-quality management plan.	Class II objectives would be met by the project. Air emissions from project construction would be minor, and air emissions from project operation would be negligible.	Sections 3.2 and 4.1
3. Water Quality	Areas designated in this class are managed to provide for the protection and enhancement of surface and groundwater resources, except for instances of short-term degradation caused by water development projects. Best management practices, developed by the BLM during the planning process outlined in the Clean Water Act Section 208 and subsequently, are used to avoid degradation and to comply with Executive Order 12088.	Groundwater from project lands would not be used for the project, and surface waters would be avoided by spanning Pine Tree Canyon Wash.	Sections 3.20 and 4.19
4. Cultural and Paleontological Resources	Archaeological and paleontological values are to be preserved and protected. Procedures described in 36 Code of Federal Regulations (CFR) Part 800 are to be observed where applicable. A Memorandum of Agreement has been signed by the BLM, the California State Historic Preservation Officer, and the President's Advisory Council on Historic Preservation to protect cultural resources.	Historic properties would be protected in accordance with 36 CFR Part 800 and/or avoided to the extent feasible.	Sections 3.6, 3.13, 4.12
5. Native American Values	Native American cultural and religious values are to be preserved where relevant and protected where applicable. Native American groups are to be consulted. Memorandums of Agreement and Understandings have been signed between the BLM and the Native American Heritage Commission pertaining to Native American concerns and cultural resources.	The BLM has consulted with Native American tribes and the Native American Heritage Commission pursuant to Section 106 of the National Historic Preservation Act.	Sections 1.5.1, 3.6, 4.5, and 5.2
6. Electrical Generation Facilities	Electric generation plants may be allowed. Existing facilities may be maintained and upgraded or improved in accordance with special use permits or by amendments to rights-of-way (ROWs).	Not applicable. Electrical generation is not proposed on BLM land.	Not applicable

Table 1-1. Multiple Use Class Guidelines Consistency – Class L Lands			
Land Use Activities	Multiple-Use Class L – Limited Use	Consistency of Proposed Action	Applicable Environmental Assessment Section
<ul style="list-style-type: none"> Nuclear and Fossil Fuel 	Not allowed.	Not applicable. Electrical generation is not proposed on BLM land.	Not applicable
<ul style="list-style-type: none"> Wind/Solar 	May be allowed after National Environmental Policy Act (NEPA) requirements are met.	Not applicable. Electrical generation is not proposed on BLM land.	Not applicable
<ul style="list-style-type: none"> Geothermal 	May be allowed pursuant to licenses issued under 43 CFR Section 3250 et seq. NEPA requirements must be met.	Not applicable. Electrical generation is not proposed on BLM land.	Not applicable
7. Transmission Facilities	New gas, electric, and water transmission facilities and cables for interstate communication may be allowed only within designated corridors. NEPA requirements must be met. Existing facilities within designated corridors may be maintained and upgraded or improved in accordance with existing ROW grants or by amendments to ROW grants. Existing facilities outside designated corridors may only be maintained but not upgraded or improved.	The gen-tie line is proposed within a designated energy corridor. NEPA requirements would be met.	Sections 1.3, 1.6.2, and 4.10
7a. Distribution Facilities	New distribution systems may be allowed and would be placed underground where feasible except where this would have a more detrimental effect on the environment than surface alignment. In addition, new distribution facilities shall be placed within existing ROWs where they are reasonably available. Existing facilities may be maintained and upgraded or improved in accordance with existing ROW grants.	Not applicable. Distribution facilities are not proposed.	Not applicable
8. Communication Sites	New sites may be allowed. NEPA requirements would be met. A 30-day public comment period is required for environmental assessments for long-distance line-of-sight communication systems of three or more sites. Existing facilities may be maintained and used in accordance with ROW grants and applicable regulations.	Not applicable. Communication sites are not proposed.	Not applicable
9. Fire Management	Fire suppression measures are to be taken in accordance with specific fire management plans subject to such conditions as the authorized officer deems necessary, such as use of motorized vehicle, aircraft, and fire retardant chemicals.	Fire prevention best management practices in accordance with State laws and regulations would be implemented.	Sections 3.8 and 4.7

Table 1-1. Multiple Use Class Guidelines Consistency – Class L Lands			
Land Use Activities	Multiple-Use Class L – Limited Use	Consistency of Proposed Action	Applicable Environmental Assessment Section
10. Vegetation Harvesting	Removal of vegetation, commercial or non-commercial, may be allowed by permit only after NEPA requirements are met and after development of necessary stipulations.	Not applicable. Harvesting of native plants for commercial or non-commercial purposes is not proposed.	Not applicable
• Native Plants	Removal of vegetation, commercial or non-commercial, may be allowed by permit only after NEPA requirements are met and after development of necessary stipulations.	Not applicable. Harvesting of native plants for commercial or non-commercial purposes is not proposed.	Not applicable
• Harvesting by mechanical means	Harvesting by mechanical means may be allowed by permit only.	Not applicable. Vegetation harvesting is not proposed.	Not applicable
• Rare, Threatened, and Endangered Species (State and Federal)	All federally and State-listed species would be fully protected. Actions that could jeopardize the continued existence of federally listed species would require consultation with the U.S. Fish and Wildlife Service (USFWS).	State and Federal rare, threatened, and endangered species would be avoided to the extent feasible. USFWS would be consulted.	Sections 3.3, 3.4, 4.2, 4.3, and 5.3
• Sensitive Plant Species	Identified sensitive species would be given protection in management decisions consistent with BLM policies.	Any identified sensitive plants would be avoided to the extent feasible. USFWS would be consulted.	Sections 3.3 and 4.2
• Unusual plant Assemblages	Identified unusual plant assemblages would be considered when conducting all site-specific environmental impact analyses to minimize impact. See also Wetland/Riparian Areas guidelines.	Any identified unusual plant assemblages would be avoided to the extent feasible.	Sections 3.3 and 4.2
• Vegetation Manipulation (Mechanical Control)	Mechanical control is not allowed.	Not applicable. Mechanical control is not proposed.	Not applicable
• Vegetation Manipulation (Chemical Control)	Aerial broadcasting application of chemical controls is not allowed. Noxious weed eradication may be allowed after site-specific planning. Types and uses of pesticides, in particular herbicides, must conform to Federal, State, and local regulations.	Aerial application of chemical controls is not proposed. Herbicides would be used subject to existing laws, regulations, and a BLM-approved Weed Management Plan and/or Pesticide Use Plan.	Sections 2.5.4, 3.10, and 4.9

Table 1-1. Multiple Use Class Guidelines Consistency – Class L Lands			
Land Use Activities	Multiple-Use Class L – Limited Use	Consistency of Proposed Action	Applicable Environmental Assessment Section
<ul style="list-style-type: none"> • Exclosures 	Exclosures may be allowed.	Not applicable. Vegetation exclosures are not proposed.	Not applicable
<ul style="list-style-type: none"> • Prescribed Burning 	Prescribed burning may be allowed after development of a site-specific management plan.	Not applicable. Burning is not proposed.	Not applicable
11. Land Tenure Adjustment	Public land may not be sold.	Not applicable. Public land acquisition is not proposed.	Not applicable
12. Livestock Grazing	<p>Grazing is allowed subject to the protection of sensitive resources. Support facilities such as corrals, loading chutes, water developments, and other facilities, permanent or temporary, may be allowed consistent with protection of sensitive resources.</p> <p>Manipulation of vegetation by chemical or mechanical means will not be allowed, except for site-specific needs (see Vegetation Element).</p>	Existing livestock grazing would be unimpeded by project development.	Sections 3.9 and 4.8
13. Mineral Exploration and Development	<p><i>Leasable Minerals:</i> Except as provided in 516 DM 11.9, “Actions Eligible for a Categorical Exclusion,” prior to approving any lease, notice, or application that was filed pursuant to 43 CFR 3100, 3500, and S.O. 3087, as amended, an environmental assessment (EA) must be prepared on the proposed action. Mitigation and reclamation measures would be required to protect and rehabilitate sensitive scenic, ecological, wildlife, vegetative, and cultural values.</p> <p><i>Locatable Minerals:</i> Location of mining claims would be nondiscretionary. Operations on mining claims would be subject to the 43 CFR 3809 regulations and applicable State and local law. NEPA requirements will be met. The BLM will review plans of operations for potential impacts on sensitive resources identified on lands in this class. Mitigation, subject to technical and economic feasibility, will be required.</p> <p><i>Saleable Minerals:</i> Except as provided in 516 DM 11.9, “Actions Eligible for a Categorical Exclusion,” new material sales locations, including sand and gravel sites, will require an EA. Continued use of existing areas of sand and gravel extractions is allowed subject to BLM permits as specified in 43 CFR 3600.</p>	Not applicable. No mineral exploration/extraction is proposed.	Not applicable

Table 1-1. Multiple Use Class Guidelines Consistency – Class L Lands			
Land Use Activities	Multiple-Use Class L – Limited Use	Consistency of Proposed Action	Applicable Environmental Assessment Section
14. Motorized Vehicle Access/Transportation	New roads and ways may be developed under ROW grants or pursuant to regulations or approved plans of operation. Motorized vehicle use will be allowed on existing routes of travel until designation of routes is accomplished. Vehicle use on some significant dunes and dry lakebeds is allowed (see Motorized Vehicle Access Element). Periodic or seasonal closures or limitations of routes of travel may be required. Access will be provided for mineral exploration and development.	The Applicant seeks a ROW grant for construction of a gen-tie line and associated access/service road.	Sections 3.18 and 4.17
• Railroads	Railroads and trams may be allowed to serve authorized uses if no other viable alternative is possible.	Not applicable. No railroad is proposed.	Not applicable
• Aircraft	Temporary landing strips may be allowed by permit.	Helicopters during gen-tie construction would be staged off-site, and no landing areas would be required on BLM land.	Section 2.5.3
15. Recreation	This class is suitable for recreation, which generally involves low to moderate user densities. Recreation opportunities include those permitted in Class C: land sailing on dry lakes, non-competitive vehicle touring, and events only on “approved” routes of travel. All organized vehicle events, competitive or not, require a permit specifying the conditions of use. These conditions will include approved routes, no pitting, start, finish, or spectator areas. Permanent or temporary facilities for resource protection and public health and safety are allowed. Trails are open for non-vehicle use and new trails for non-motorized access may be allowed.	Not applicable. No new recreation is proposed.	Sections 3.15 and 4.14
16. Waste Disposal	Hazardous waste disposal sites are not allowed. New non-hazardous waste disposal sites are not allowed.	Not applicable. No waste site is proposed.	Not applicable
17. Wildlife Species and Habitat Rare, Threatened, and Endangered Species (both State and Federal)	All federally and State-listed species and their critical habitat are fully protected. Actions that may affect or jeopardize the continued existence of federally listed species will require formal consultation with USFWS in accordance with Section 7 of the Endangered Species Act.	The BLM will consult with USFWS regarding incidental take of state and federally threatened species and habitat.	Sections 3.4, 4.3, and 5.3

Table 1-1. Multiple Use Class Guidelines Consistency – Class L Lands			
Land Use Activities	Multiple-Use Class L – Limited Use	Consistency of Proposed Action	Applicable Environmental Assessment Section
<ul style="list-style-type: none"> Sensitive Species 	Identified species will be given protection in management decisions consistent with BLM policies.	Sensitive species would be avoided to the extent feasible.	Sections 3.3, 4.2, and 5.3
<ul style="list-style-type: none"> Predator and Pest Control 	Control of depredation wildlife and pests will be allowed in accordance with existing State and Federal laws.	Noxious weed control best management practices would be employed, and the project would be designed to ensure minimal perching opportunities for ravens.	Sections 2.5.4, 3.10, and 4.9
<ul style="list-style-type: none"> Habitat Manipulation 	Projects to improve wildlife habitat may be allowed subject to environmental assessment.	Not applicable. Habitat improvement is not proposed on-site.	Not applicable
<ul style="list-style-type: none"> Reintroduction or Introduction of Established Exotic Species 	Reintroduction or introduction of native species or established exotic species is allowed.	Best management practices would be implemented to protect against introduction of new exotic species.	Sections 2.5.4, 3.10, and 4.9
18. Wetland/Riparian Areas	Wetland/riparian areas are to be considered in all proposed land-use actions. Steps will be taken to provide that these unique characteristics and ecological requirements are managed in accordance with Executive Order 11990, Protection of Wetlands (42 CFR 26951), legislative and Secretarial direction, and BLM Manual 6740, “Wetland Riparian Area Protection and Management” (10/1/79).	The proposed gen-tie would span Pine Tree Canyon Wash, an ephemeral stream. No waters of the U.S. or identified wetland/riparian areas would be affected.	Sections 3.20 and 4.19
19. Wild Horses and Burros	Populations of wild and free-roaming horses and burros will be maintained in healthy, stable herds in accordance with the Wild and Free-Roaming Horse and Burro Act of 1971, but will be subject to controls to protect sensitive resources.	No wild or free-roaming horses or burros are known in the gen-tie area. The project would not affect horses or burros.	Section 3.1

2. ALTERNATIVES

The gen-tie line would provide a direct interconnection of the private solar facility site with LADWP’s existing Barren Ridge Switching Station, located approximately 2 miles to the north. Three alternative gen-tie alignments and the No Action Alternative are analyzed in this EA. The length of each alternative alignment and the ownership status of the lands through which they would pass are presented in Table 2-1. Table 2-1 identifies the length in miles and the size of the required ROW (and/or private easement) in acres for each alternative, assuming a ROW that is 150 feet in width. It does not identify the amount of land that would be disturbed; disturbance acreages are discussed in Section 2.6 of this document.

Table 2-1. Gen-Tie Line Land Ownership, All Alternatives			
Alternative	Federal Lands (miles, acres)	Private/LADWP Lands (miles, acres)	Total (miles, acres)
Alternative 1 (No Action)	0.0, 0.0	0.0, 0.0	0.0, 0.0
Alternative 2 (BLM Preferred Alignment)	1.5, 43.0	0.5, 22.8	2.0, 65.8
Alternative 3 (Alternative BLM Land)	1.4, 40.4	0.5, 22.8	1.9, 63.2
Alternative 4 (Private Land Only)	0.0, 0.0	3.5, 116.0	3.5, 116.0

2.1 Alternative 1 (No Action Alternative)

Under the No Action Alternative, the BLM would deny the ROW grant for either of the gen-tie alternatives on BLM-managed land (Alternatives 2 and 3). Under the No Action Alternative, the Cinco solar generation facility would either not be built, or it would obtain gen-tie access via an alternative means that does not require use of BLM-managed land or an action by the BLM. Because In this case, because a private land alternative is possible, it is anticipated that, in the event that the BLM were to deny the ROW grant for the use of BLM lands, Alternative 4 (the private lands alignment, described below) would be the likely alternative for construction. Under the No Action Alternative, BLM-managed lands in the area would remain available for other uses that are consistent with the CDCA Plan and other BLM land use designations and policies, including possible placement of transmission facilities that other applicants could propose in the future.

2.2 Alternative 2 (BLM Preferred Alignment)

Alternative 2 is a primarily public land alignment approximately 2.0 miles in length, commencing at the northwest corner of the planned solar facility site, traveling northeasterly in NE¹/₄NE¹/₄, SW¹/₄NE¹/₄, SE¹/₄NE¹/₄, NE¹/₄SW¹/₄, SE¹/₄SW¹/₄, NW¹/₄SE¹/₄, and SW¹/₄SE¹/₄, section 24, township 31 south, range 36 east, then in lot 3 and lot 4 in section 13, lot 1 in section 24, township 31 south, range 36 ½ east, and terminating in private land in section 18, township 31 south, range 37 east, Mount Diablo Base Meridian, California. Three design options are under

consideration for this alternative, and are described more fully in Section 2.6.1. See Figure 1-4a for the location of this alignment.

2.3 Alternative 3 (Kern County Alignment)

Alternative 3 is a primarily public land alignment approximately 1.9 miles in length, commencing at the northeast corner of the planned solar facility site and travelling northerly in lot 3 and lot 4, section 13, through the western portions in lot 1, lot 2, lot 3 and lot 4, section 24, and lot 1, section 25, township 31 south, range 36 ½ east, and then terminating on private land in section 18, township 31 south, range 37 east, Mount Diablo Base Meridian, California. This alignment is identical to that proposed and evaluated in the 2011 Kern County EIR for the project (Kern County 2011a). See Figure 1-4a for the location of this alignment.

2.4 Alternative 4 (Private Land Alignment)

Alternative 4 is an entirely private land alternative approximately 3.5 miles in length, commencing at the southeast corner of the planned solar facility site and travelling easterly in section 25 township 31 south, range 36 east, crossing over SR-14, and then traveling easterly through section 36, township 31 south, range 36 ½ east and into section 31, township 31 south, range 37 east, then northerly into section 30, township 31 south, range 37 east, then north easterly within section 30 adjacent to SR-14, then turning northwesterly, crossing SR-14, and then into section 19, township 31 south, range 37 east, then turning north within section 19 and terminating in section 18 of township 31 south, range 37 east. See Figure 1-4a for the location of this alignment.

2.5 Elements Common to All Action Alternatives

Alternative 2, 3, and 4 gen-tie alignments would all include the principal structural components described below. Sections 2.6.1, 2.6.2, and 2.6.3 discuss the variations between the alternatives, and Section 2.8 provides a summary comparison of the alternatives.

2.5.1 *Transmission Support Structures and Conductors*

The transmission support structures would vary depending on the alternative and design option selected. Complete descriptions of each alternative and option are provided in Section 2.6.1. The structures would consist of either wooden H-frame and triple-pole structures measuring 80 to 100 feet above grade, and/or steel lattice towers measuring 100 to 135 feet above grade. All of the alternatives would require either lattice towers or triple-pole steel poles on either side of Pine Tree Canyon Wash to facilitate the length of the span required to avoid disturbance within the wash.

Depending on the alternative, the remaining length of the system could be constructed with one of the following options: (1) wooden H-frame structures, (2) steel lattice towers, or (3) lattice towers with additional double-circuit support structures to accommodate future gen-ties.

If lattice towers are used at the wash crossing, they would be mounted on four separate concrete foundations, one for each of the tower's four legs. The span distance between the two towers on either side of the wash would be approximately 1,700 feet. If lattice structures are used along the rest of the gen-tie, the distance between structures would be approximately 1,100 feet, and they would have similar foundations as those described above. Lattice towers would be of similar appearance to the existing LADWP towers west of the gen-tie alternatives.

If triple-pole steel structures are used at the wash crossing, they would be embedded to a depth of 15 to 30 feet beneath the ground surface. The distance across the wash would again be approximately 1,700 feet. Wooden H-frame structures along the remainder of the gen-tie alignment would be spaced approximately 700 to 1,100 feet apart, but this spacing could vary slightly based on terrain factors.

Minimum conductor clearance with respect to wind, voltage, structural span, and height would follow California Public Utilities Commission (CPUC) guidelines. Depending on the result of consultation with the Federal Aviation Administration and USFWS, aviation safety marker balls and/or bird flight diverters may be installed on mid-span conductor segments.

The gen-tie would also incorporate an optical ground wire for protection and control communications between the solar facility and the Barren Ridge Switching Station, and also a distribution circuit coming from the Barren Ridge Switching Station to the solar facility. The optical ground wire and distribution circuit would be supported by the same structures as the main power conductors.

Required upgrades to equipment at the Barren Ridge Switching Station would occur within the existing and/or previously approved expansion of the switching station fence line on LADWP lands.

2.5.2 *Gen-Tie Service Road*

All of the action alternatives include the provision of a dirt service road that would provide access to the gen-tie for construction and maintenance activities. The location and layout of the service road would differ depending on the selected alternative. Specific layout and location information of the service roads under each of the action alternatives is provided in Sections 2.6.1, 2.6.2, and 2.6.3.

2.5.3 *Gen-Tie Construction*

Construction of the gen-tie would generally be carried out in the sequence listed below.

Pre-Construction Activities

Prior to construction activities along the gen-tie alignment, a number of activities would be undertaken to prepare the site and crews for construction. These pre-construction activities are listed below.

Construction Environmental Compliance Management Plan

Prior to construction, a Construction Environmental Compliance Management Plan would be prepared by the Applicant and approved by BLM. The plan would include a program whereby the various environmental commitments and mitigations for the project could be managed and monitored. Some of these commitments take the form of project design features as described in this EA. Other commitments include implementation of the various activities and plans that are also described in this EA. Pre-Construction surveys, as described below, are an example of these types of activities. The plan would also include a program for monitoring the implementation of any mitigation measures that would be required. These mitigations are prescribed in Chapter 4 of this EA. The plan would list the prescribed measures; describe how their implementation would be monitored and by whom; and describe how the monitoring program would be reported to BLM

Pre-Construction Surveys

Qualified biologists would conduct pre-construction surveys for Agassiz's desert tortoise (*Gopherus agassizii*), Mohave ground squirrel (*Xerospermophilus mohavensis*), burrowing owl (*Athene cunicularia*), other raptors and migratory birds, American badger (*Taxidea taxus*), and desert kit fox (*Vulpes macrotis arsipus*) in accordance with accepted protocols before construction starts. Specific details concerning these pre-construction surveys and implementation of the Desert Tortoise Relocation Plan can be found in Section 4.3. Sensitive resource areas would be flagged so they could be avoided or appropriately managed during construction.

Construction Crew Training

Any sensitive resources identified during the pre-construction surveys would be flagged or otherwise identified in the field to ensure awareness and appropriate avoidance during construction.

Prior to construction, all contractors, subcontractors, and project personnel would receive Worker Environmental Awareness Program (WEAP) training regarding the appropriate work practices necessary to effectively understand and implement the biological commitments in the project description; implement the mitigation measures; comply with applicable environmental laws and regulations; avoid and minimize impacts; and understand the importance of these resources and the purpose and necessity of protecting them. At a minimum, the following species and their habitat would be specifically covered in the WEAP: desert tortoise, Mohave ground squirrel, burrowing owl, other raptors and migratory birds, American badger, and desert kit fox. Applicable sensitive plant species would also be covered in the WEAP.

Gen-Tie Surveying

Pre-construction field survey work would include geotechnical testing, and locating the alignment centerline, structure center hubs, and ROW boundaries. All of these features would be

subsequently staked in the field. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction limits.

A geotechnical investigation would be conducted to determine the subsurface soil conditions and final design criteria. A formal Geotechnical Investigation Plan will be approved by the BLM prior to any disturbance causing activities. This investigation would require access to each of the proposed transmission line structure sites by a small drill rig. The drill rig would sample the existing soils to a depth of approximately 50 feet. Access to the sampling locations would take place via existing roads and new roads that would be constructed as part of the project. Detailed information concerning new roads associated with each alternative alignment is provided in Sections 2.6.1, 2.6.2, and 2.6.3.

Establishment of Site Access and Construction Staging Area

Regardless of the alignment selected, access to the southern portion of the alignment would begin from the private land solar facility site, and access to the northern portion would begin from Pine Tree Canyon Road. A staging area would be established for storing materials, construction equipment, and vehicles, and also as a check-in yard for construction crews. The staging area would be located on the solar facility site on private land (in T31S–R36E Sec 24, MDBM).

Physical Construction Activities

Construction of the gen-tie line would begin after construction of the service road and/or spur roads. Existing roadways will be used to the maximum extent possible. New roadway would be constructed with bulldozers and graders, and then compacted to the extent required to ensure stability. Associated spoils would be pushed to the sides of the roadway. Earthen berms thus created would be rounded off so as not to inhibit travel by desert tortoise. The permanent road would be 12 feet in width with a maximum temporary disturbance of 20 feet in width.

Installation of the gen-tie line would require temporary radial work areas around each structure. The area used would be only that necessary to safely perform the construction, which could extend to a 60-foot radius from the structure's center point. Vegetation would not be cleared, but would instead be crushed to aid in restoration after construction is complete. Each wooden structure, if used, would be set within an augured hole or concrete foundation. Holes would be excavated using a truck-mounted drill rig. Poles would be delivered on a flat-bed trailer and hoisted into place by a crane. The annular space between poles and holes would be backfilled with concrete or soil. Resultant spoils would be spread around the work area. Lattice towers, if used, would be mounted on concrete piers. A truck-mounted drill rig would be used to excavate holes for the piers. The lattice towers would be delivered to the site via truck and assembled on-site.

Multiple pull sites would be required for installing conductors. The pull sites would range in size from 150 feet by 450 feet (1.55 acre) to 150 feet by 600 feet (2.07 acres), depending upon the pole type and location. Conductors would be strung between poles and towers with heavy-duty trucks, except for the span between the towers on either side of Pine Tree Canyon Wash, which would be strung with a helicopter or by dragging a lead line for the conductor to avoid large-scale disturbance through the wash.

After the conductors have been pulled into place, the conductor sag between the structures would be adjusted to a pre-calculated level, and the line would then be set with a minimum ground clearance that meets applicable requirements. The conductors would be attached to the end of each insulator, the sheaves removed, and the vibration dampers and other accessories installed. Ground crews would perform this work.

Construction of the gen-tie line is anticipated to require three to four crews consisting of linemen, electricians, laborers, and operators, totaling 20 to 30 personnel. The installation would take place on weekdays and should not require overtime work or weekend work. Minimal clearing and grading would be required for installing the gen-tie line, with permanent disturbance limited to the area immediately surrounding each structure (an approximately 60 foot radius around each structure) and the 12-foot-wide unimproved service road along the alignment. The duration of helicopter use would be several hours on a single construction day, if required at all.

Equipment that would likely be used during construction of the gen-tie line and service road are summarized in Table 2-2.

Table 2-2. Gen-Tie Line Construction Equipment	
Equipment Type	Quantity
Backhoe	1
Bulldozer	1
Crane	1
Drill rig	1
Front-end loader	1
Forklifts	2
Helicopter	1
Roller vibrator	1
Water truck	1
Concrete truck	1
Dump trucks	4
Flatbed truck	1
Light- and medium-duty trucks	5

Water would be used for dust suppression during road and gen-tie line construction, with BLM approved dust palliatives added as needed. No wells would be installed as part of the project, and no project site groundwater would be used for construction or operation of the gen-tie line. The Mojave Public Utilities District has indicated that it could provide water that could be trucked to the site. The northern service area boundary of the Mojave Public Utilities District is within 5 miles of the project site, and would be the most likely place to designate a metered connection. The volume of water required for construction of the gen-tie would range from 5 to 7 acre-feet, depending on the alternative selected.

Post-Construction Cleanup

A Plan of Development would be approved by the BLM prior to the initiation of construction. As per the Plan of Development, construction sites would be kept in an orderly condition throughout the construction period by using approved enclosed refuse containers. All refuse and trash would be removed from the site and disposed of in accordance with BLM and other applicable regulations. No open burning of construction trash would occur.

Reclamation and Restoration of Temporary Disturbance Areas

As per the approved Plan of Development, reclamation activities would be conducted on temporarily disturbed construction areas, including structure locations and pull sites. A Reclamation and Revegetation Plan would be prepared and approved by BLM prior to construction. At a minimum, the plan would include the following

- To the maximum extent possible, all vegetation within work areas would be identified and flagged prior to initiation of construction for protection against trampling or removal. In all other areas, larger vegetation would be avoided by using the overland travel routes designated for construction equipment.
- Mulch or fertilizers would not be applied to avoid creating nutrient-rich sites that favor seed germination of alien and invasive plant species.
- Plant species in temporary disturbance areas that are protected under the California Desert Native Plants Act (California Food and Agricultural Code 80071 through 80075) would be salvaged and replanted at a site approved by the BLM.
- Following construction, disturbed areas would be restored to near the original (pre-construction) topographic contours. Placement of gravel, rocks, and native vegetative material would make the site less visible to passersby, and, thus, discourage spontaneous creation of unauthorized off-road trails.
- Hydrologic features, including wash banks, would not be disturbed to the extent possible.

- New seed collected locally would be broadcast or planted in a manner prescribed by the BLM.
- Native vegetation previously cleared from a construction area would be crushed and distributed over the surface within the reclaimed area to increase soil moisture and provide micro-catchments for wind-dispersed seeds.
- If a BLM biologist/botanist determines that vegetation is unsalvageable, it would be removed in the manner prescribed by the BLM, and revegetation would follow the prescription directed by the BLM.

The prevention of, introduction of, and spread of weeds and exotic species would be addressed throughout the construction process by complying with the weed management approach described below (see “Vegetation Management and Invasive Weed Control Approach”). All equipment used during construction would be washed at an approved site prior to entering BLM land and will be free of mud, dirt, grease, and other unwanted material. This practice would ensure that weed seed from a different region is not transported into the project area.

Construction Schedule

The table below shows a general construction schedule. Some of the activities could overlap, depending on project scheduling and the availability of crews and materials. For instance, once some of the access road segments are constructed, structure placement could commence while construction of the remaining access road segments is ongoing. Site cleanup would occur throughout the construction period.

Table 2-3. General Construction Schedule		
Activity	Duration	Month(s) of Activity
Surveying and Geotechnical Investigation	1 month	Month 1
Access Road Construction	3 months	Months 1 through 3
Structure Placement	3 months	Months 1 through 3
Conductor Installation	3 months	Months 2 through 4
Site Cleanup	Throughout	Throughout
Temporary Impact Area Restoration	3 months	Months 4 through 6
Activation	-	Month 4

2.5.4 Gen-Tie Operation

The gen-tie would operate continuously throughout the life of the solar project, which is estimated to be 30 years. Once constructed, activities associated with the gen-tie would be restricted to inspection and occasional maintenance and repair. Operational activities are described below.

Gen-Tie Inspection and Maintenance

Semi-annual visual inspections of the gen-tie would be conducted via ground-based line patrols, including visual inspections of insulators, overhead grounds, and tower hardware. Line patrols would also perform trash removal services. Infrared scanning of insulators, overhead grounds, and hardware would be performed during initial start-up, at end of the first year, and subsequently every 3 years during the life of the project. Infrared scanning would be performed from the ground using a camera with telephoto capabilities. Alternately, the inspection could take place using aerial overflights.

Insulator washing is usually only necessary in areas with high air pollutant contamination. Based on the location of the project and assuming that insulators are not porcelain; washing to prevent the buildup of contaminants on insulators is not expected to be necessary, but may occur.

It is not expected that replacement of conductors, poles, or other structural components of the gen-tie would be required during the term of the ROW grant. These components are engineered and manufactured to remain serviceable for long periods, and in many cases remain serviceable for many decades. In the unlikely event that a conductor, pole, or similar structural component were to be damaged and require repair or replacement, emergency repairs would be coordinated with the BLM in compliance with applicable regulations and guidelines, consistent with any plans approved for the initial construction.

Service Road Maintenance

The gen-tie service road segments for which the Applicant would be responsible would be periodically graded to maintain adequate access. Maintenance of any shared roadways would be coordinated with the sharing party. Grading would normally only occur after a large storm event that resulted in loss of integrity of the roadbed or inadequate access to the gen-tie facilities. All proposed maintenance activities would be coordinated with the BLM prior to initiation of those activities.

Safety

A Site Safety Plan and Emergency Response Plan would be prepared prior to construction. An appropriately qualified and certified expert would conduct a baseline health and safety compliance and risk assessment to identify key risks and compliance obligations. The expert would review and evaluate existing procedures, work practices, and other controls, and would make recommendations for corrective actions as needed for compliance with local, State, and Federal regulations and guidelines. A site-specific plan for hazard identification and planning for health and safety management would then be prepared and documented. Topics in the plan would include, but not be limited to, the following:

- Hazardous energy control and electrical safety

- Hazard communication
- Personal protective equipment guidelines and protocols
- Emergency management (e.g., fire, earthquake, weather)
- Emergency response
- Protections from biological hazards (e.g., plants, animals, insects)

All relevant personnel would receive training on all aspects of the health and safety program.

Industrial Waste and Toxic Substances

Acutely hazardous materials would not be used during construction and operation of the gen-tie, but minor amounts of more common and mildly hazardous materials, such as fuels and lubricants for vehicles and equipment, would be used during construction and operation. Kits for handling spills of hazardous materials would be carried in vehicles to respond to any small spills that might occur. A Hazardous Materials Spill Response Plan would be prepared for the project. The plan would describe all activities to be undertaken to prevent and respond to any hazardous spills. Hazardous materials would not be disposed of or released onto the ground, underlying groundwater, or any surface water.

A Material Disposal and Solid Waste Management Plan would be prepared for the project that would describe all solid waste disposal activities. All trash would have fully enclosed containment on-site. All construction waste, including trash, other solid waste, petroleum products, and other potentially hazardous materials would be removed to a hazardous waste facility permitted or otherwise authorized by the California Department of Toxic Substances Control to treat, store, or dispose of such materials.

Vegetation Management and Invasive Weed Control Approach

CPUC General Order 95 requires vegetation management around transmission structures to ensure safety and access for emergency work. A working zone around all transmission structures is required. The zone would be kept clear of tall vegetation and other obstructions to facilitate inspection and maintenance, in compliance with applicable environmental regulations. All vegetation that may interfere with access to structures would be trimmed and removed using manual non-mechanical means or sprayed with an approved herbicide, as necessary.

Based on the aridity of the project area and the overall low densities of vegetation present, it is not likely that vegetation would encroach upon structures so that access would become impaired. However, noxious weeds and other nonnative invasive plant species could create a fire hazard if allowed to become established, and invasive weeds could also become problematic from an

ecological perspective. Therefore, weed control activities would be implemented within the project limits.

Weed control activities would include both non-mechanical and herbicide control methods. Manual non-mechanical means of vegetation management would be limited to the use of hand-operated power tools and hand tools to cut, clear, or prune herbaceous and woody species. Hand-operated tools such as hoes, shovels, and hand saws could be used under the program, as well as hand-pulling of plants. Mechanical control activities, such as chaining, disking, grubbing, and mowing using tractors or other heavy equipment would not be a part of the vegetation management program.

Herbicide control would involve the use of BLM-approved herbicides to control weed populations when manual control methods are not successful in managing the spread of invasive plants. All weed control using herbicides and adjuvants would be conducted in compliance with California BLM-approved chemicals (including manufacturer application rates and use) as identified in the BLM's 2007 PEIS for vegetation management using herbicides (BLM 2007) and updated in Information Bulletin No. 2012-022 (December 2011). The process for treatments would be characterized in a Pesticide Use Proposal approved by the BLM. Herbicides would likely be necessary to control the spread of invasive weeds following construction disturbance as part of an integrated pest management strategy. All components of the weed management approach would comply with the requirements of the Record of Decision for the 2007 Vegetation Treatments PEIS. Herbicide control would include the following:

- Use of Monsanto Corporation glyphosate products, including Roundup PRO[®] or AquaMaster[®] herbicides, with Roundup PRO applied in the upland portions of the ROW and AquaMaster applied in the potentially jurisdictional waters of the State or drainages.
- Triclopyr (Garlon[®]) from Dow Agrosiences may be used as an alternative treatment chemical if needed, and would be applied at the manufacturer's recommended typical application rate.
- Herbicide would be applied by hand from a backpack sprayer or a truck-mounted spray rig. The truck mounted spray rig would use individual lines that are applied by hand directly to individual plants and would not use a truck-mounted boom sprayer, or any broadcast type sprayer. Non-toxic dye would be added to the mixture to mark areas that have already been treated, thereby avoiding over-application.
- The maximum rate of application for Roundup would be 10.6 quarts per acre per year, and for AquaMaster would be 8 quarts per acre per year.
- The intended rate of application is 2% solution for Roundup and 1.5% solution for AquaMaster.

- The maximum rate of application for Garlon 4 would be 2 gallons per acre per year.
- The pound of active ingredient or acid equivalent would be 8 pounds per acre per year.
- Application dates would be intended to cover the entire period of the ROW grant, beginning during the construction phase, if needed.
- Treatments would be as needed, upon emergence of the target weed species during the growing season. Growing seasons are typically during the winter months (November to April), but may include the summer months (July to September) if summer rainfall is sufficient to germinate target weed species during those months.
- The total number of applications would depend on the extent of weed infestation within the disturbance area, but it is expected that three or more treatment efforts may be required per year. Treatment efforts may be defined as one round of complete coverage for the entire gen-tie ROW within BLM lands. Rainfall amounts would determine the number of treatment efforts that would be needed, but it is assumed that there would be weed control visits conducted no more than once a month during the winter/spring season. Based on these basic assumptions (three visits per year), there is the potential for approximately 105 annual treatments for the gen-tie ROW during a 35-year period.
- The primary nonnative species to be targeted are Saharan mustard (*Brassica tournefortii*), Russian thistle (*Salsola tragus*), Mediterranean grass (*Schismus barbatus*), and filaree (*Erodium* spp.). If additional nonnative plant species are identified during monitoring, these would also be targeted for control efforts.
- Crew members who conduct weed treatment in the project area would have extensive experience working around sensitive habitats and species. In addition, crews would be monitored by a restoration ecologist and a desert tortoise monitor. Weed control would be specifically applied to individual plants and not sprayed broadly across the project area.
- Crews would work under the direct supervision of a licensed Certified Pesticide Applicator.
- Crews would adhere to strict application guidelines when applying herbicide during wind to minimize drift and chemical contact with non-target vegetation or wildlife. Herbicide application would be suspended if winds are in excess of 6 miles per hour, or if precipitation is occurring or imminent (predicted within the next 24 hours).
- The chemicals chosen (glyphosate and triclopyr) have been identified for use due to low likelihood of toxicity to wildlife species, in particular Agassiz's desert tortoise, as analyzed in BLM's 2007 Vegetation Treatments PEIS. There is a potential for ingestion

of recently treated plants, but an on-site restoration ecologist and tortoise monitors would minimize this risk. After treatment, the herbicide would dry rapidly in the desert environment and the risk would be further minimized.

2.5.5 *Operational Termination and Decommissioning Activities*

The life of the solar facility would be approximately 30 years. At the end of its useful life, the project owner could choose to update the technology and re-commission the facility. If the decision were made to continue use of the solar facility, and, thus, the gen-tie as well, a new ROW grant for the use of public lands would need to be entered into. A supplemental NEPA analysis would need to be conducted to assess the effects of continuing operation of the gen-tie and issuance of a new ROW grant, in compliance with BLM requirements in effect at the time of issuance.

Should the decision be made to decommission the solar facility, the gen-tie line would also be decommissioned. A BLM-approved Decommissioning, Demolition and Site Reclamation Plan would be required to be in place no sooner than 120 days prior to the end of the ROW term.

As part of the gen-tie's decommissioning, all conductors and poles would be removed and hauled off-site for scrapping or to an approved landfill. A collection and recycling program would be implemented to promote recycling of project components and to minimize disposal of project components into landfills.

For any new linear service road constructed by the project on public lands, the BLM would determine, at its discretion or in accordance with current law or policy, whether it would like the service road to remain open to limited or general public use, or whether it would like the road to be closed. Generally, roadways on BLM lands are allowed to remain in use, but occasionally management requirements and land use goals require that the roadway be blocked and actively restored or passively allowed to revert to natural conditions. In some cases, roadways are restored to pre-use conditions immediately upon closure. Sometimes, just the beginning portions of a roadway are restored to disguise the roadway's former use and to discourage future public use. Under this scenario, remaining segments not readily visible from a public roadway would be allowed to revert naturally to pre-use conditions.

Topographic landform features would be restored to near pre-project construction contours or as approved by the BLM. Any soils disturbed in the process of decommissioning would be stabilized using the BLM-approved Demolition and Reclamation Plan for restoration activities.

For those portions of any approved service road on private lands, the private landowner would determine if it would like the service road to remain open to limited or general public use, or if it would like the road to be closed. If the decision were made to close the road, a restoration plan similar to that described for public lands would be implemented.

2.6 Description of Alternatives Analyzed in Detail

2.6.1 Alternative 2 – BLM Preferred Alternative

Alternative 2 (the BLM Preferred Alternative) would route the gen-tie primarily over public lands from the solar facility to the Barren Ridge Switching Station, paralleling existing and planned LADWP transmission lines and sharing a primary service road with those existing facilities. Short spur roads would be constructed between the existing LADWP access road and the new Alternative 2 transmission structures. The spur roads will be shared with the planned LADWP Barren Ridge Renewable Transmission Project spur roads to the maximum extent.

Figure 1-4a shows the proposed alignment for the Alternative 2 gen-tie route. Detailed design information and impact drawings concerning the Alternative 2 alignment gen-tie can be found in Appendix B of this EA. Table 2-4 summarizes the public and private lands that would be crossed by the Alternative 2 gen-tie alignment.

Alternative	Federal Lands (miles)	Private/LADWP Lands (miles)	Total (miles)
Alternative 2 (BLM Preferred Alignment)	1.5	0.5	2.0

The ROW for the alignment would be generally 150 feet in width plus radial areas for conductor pull sites at each turn in the alignment, and a separate ROW area for new spur roads leading from the existing LADWP service road. The ROW would accommodate the 230- kV gen-tie line, new spur roads, and all other areas of temporary disturbance. The alignment would exit the private land solar facility at the northwest corner of the site onto BLM lands. Once on BLM lands, the alignment would travel north-northeasterly to parallel the existing and planned LADWP high-voltage transmission lines for approximately 1.2 miles before crossing the broad alluvial channel of the ephemeral Pine Tree Canyon Wash. The alluvial channel of the wash is approximately 0.25 miles in width. There is no principal channel. Flows are infrequent, and the active channels appear to shift regularly. Across the wash, the alignment would enter private lands for 0.1 miles before re-entering BLM lands for another 0.3 miles.

After crossing Pine Tree Canyon Wash, the alignment would continue to parallel the LADWP transmission lines, pass over the southeast corner of a private lands parcel for approximately 300 feet, and then reenter BLM lands for approximately 1,500 feet before turning east to again enter private lands, followed by a final northern turn that would continue to the existing LADWP Barren Ridge Switching Station. From the eastern turn onwards to the existing switching station, the alignment would travel through non- Federal lands only. Two private parcels and one parcel owned by LADWP would be used for the northern portion of the Alternative 2 gen-tie alignment, which would travel approximately 0.4 miles in a northerly direction and, across Pine Tree

Canyon Road (which is a private extension of BLM Route MK55) before entering the Barren Ridge Switching Station.

For the length of the alignment that would be collocated with the LADWP ROW, the LADWP access road would be shared, and short spur roads would be constructed between the existing access road and the Alternative 2 transmission structures. The existing LADWP access road segment that would be used for access to the Alternative 2 transmission structures is approximately 10,350 feet (1.96 mile) in length and is typically about 12 feet in width, for a total existing access road disturbance footprint of approximately 2.85 acres. See Appendix B for detailed design and impact drawings that show the location of the existing LADWP access road and the new spur roads that would be constructed as part of Alternative 2. The precise location of transmission structures and associated access road spurs could vary slightly from that shown in the plans, based upon final design and field conditions.

It is anticipated that up to 7 acre- feet of water would be required for the 6-month duration of construction of Alternative 2.

Three design options for the structural components of the gen-tie are under consideration for the Alternative 2 alignment:

Option A (H-Frame Option): If geotechnical conditions allow, the project Applicant would prefer to construct the gen-tie with primarily wooden structures. Under Option A, the gen-tie would be developed with a combination of approximately 11 wooden H-frame structures along straight segments of the alignment, approximately five wooden triple-pole structures at bends and termini in the alignment, and two triple-pole steel structures at the Pine Tree Canyon Wash crossing. The steel structures at Pine Tree Canyon Wash would be needed to facilitate the approximately 1,700-foot span required at that location. The triple pole structures would be supported by insulated guy wires that would comply with guidelines prescribed by the Avian Power Line Interaction Committee (APLIC 2012). The height of the wooden H-frame and wooden triple-pole structures would be 70 to 80 feet above grade, and the two triple-pole steel structures at the wash crossing would be 135 feet above grade. Under Option A, up to 13 new spur roads (up to 320 feet in length each) would be constructed from the existing service road that runs alongside the existing LADWP transmission lines.

Option B (Lattice Tower Option): Under Option B, the gen-tie would be developed entirely with lattice steel structures (approximately 12), which would be placed adjacent to the planned LADWP BRRTP lattice steel structures at equivalent span distances. The height of each tower would be 100 feet or 135 feet above grade, depending on location. Detailed design and impact drawings can be found in Appendix B. The project Applicant is in close coordination with LADWP in planning for concurrent and/or overlapping construction schedules for transmission lines. Under Option B, up to six spur roads (200 feet in length apiece) would be constructed as extensions of LADWP's planned spur roads to each of its towers. Since portions of these

roadways would be constructed as part of the LADWP project, a net savings in disturbance would be realized than would be the case if the spur roads were to serve only the Applicant’s project. Instead of 320 feet of new roadway for each tower location, only 200 feet of additional roadway would need to be constructed. However, because of the anticipated timing of construction of both projects, the Applicant may need to construct the full length of the planned spur roads prior to LADWP’s need for them.. LADWP would then make use of those roads for access to their tower construction sites to the fullest extent possible. For this reason, this analysis assumes that the entire length of each spur road (up to 320 feet) would be constructed as part of the RE Cinco Gen-Tie Project.

Option C (Double-Circuit Support Structures for Future Renewable Generators): Under Option C, the gen-tie would be developed with double-circuit transmission support structures that could accommodate a potential future circuit from the south into the Barren Ridge Switching Station. The intent of this option is to optimize the use of space within the utility corridor and to minimize the potential environmental impacts that would be realized if an all new transmission line were to be constructed in the future. This option would only be used with the lattice steel structures proposed for Option B. The number of towers and spur roads, as well as the total disturbance area, would be identical to Option B. The only difference between Option C and Option B would be that the transmission structures would be taller. To accommodate an additional circuit, the transmission structures would need to be approximately 35 feet taller than those described above, providing for a total height above grade of 135 feet to 170 feet. There are currently no confirmed plans by other energy providers to use such a double-circuit arrangement. A cost-sharing agreement between the project applicant and another provider is not currently in place, and no agreements are pending. Table 2-5 details the temporary and permanent disturbances associated with Alternative 2 with either Option A, Option B, or Option C.

Alternative 2 with Option A (BLM Preferred Option)				
Project Component	New Permanent Disturbance² (acres)		Additional New Temporary Disturbance³ (acres)	
	Federal Lands	Private/LADWP Lands	Federal Lands	Private/LADWP Lands
Pole Access (Pole Pad Area ⁴ and Service or Spur Roads ⁵)	11.67	0.82	4.67	2.20
Pull Sites ⁶	0.0	0.0	8.26	4.65
SUBTOTAL	1.69	0.82	12.93	16.85
TOTAL (acres)	2.51		19.78	

Alternative 2 with Option B				
Project Component	New Permanent Disturbance² (acres)		Additional New Temporary Disturbance³ (acres)	
	Federal Lands	Private/LADWP Lands	Federal Lands	Private/LADWP Lands
Pole Access (Pole Pad Area ⁴ and Service or Spur Roads ⁵)	1.99	1.24	0.47	0.39
Pull Sites ⁶	0.0	0.0	7.64	3.49
SUBTOTAL	1.99	1.24	8.11	3.88
TOTAL (acres)	3.23		11.99	
Alternative 2 with Option C⁷				
Project Component	New Permanent Disturbance² (acres)		Additional New Temporary Disturbance³ (acres)	
	Federal Lands	Private/LADWP Lands	Federal Lands	Private/LADWP Lands
Pole Access (Pole Pad Area ⁴ and Service or Spur Roads ⁵)	1.99	1.24	0.0	0.0
Pull Sites ⁶	0.0	0.0	7.64	3.49
SUBTOTAL	1.99	1.24	8.11	3.88
TOTAL (acres)	3.23		11.99	
LADWP = Los Angeles Department of Water and Power				
1. Disturbance acreage calculations are based on 60% designs and may be subject to change based on final design and field conditions. Changes derived during final design would not be expected to vary more than ±10% from that presented here.				
2. Permanent disturbance is defined as those areas that would be permanently impacted over the life of the project, which include structure and service road footprints.				
3. Temporary disturbance is defined as those areas that would be disturbed during construction, but that would be returned to natural conditions following construction. These include work areas around structures and conductor pull sites.				
4. Pole pad areas may vary, but would not exceed 60 feet in diameter for permanent and temporary disturbance.				
5. Although new roads would be 12 feet wide, the maximum construction-related disturbance would include a 20-foot width. The entire 20-foot width is considered to be permanent disturbance because roadway maintenance is anticipated throughout the operational phase of the project. The length of each spur road is assumed to be up to 320 feet in length, which each would start at the existing LADWP access road and end at the new proposed tower locations.				
6. Pull sites would range in size from 150 feet by 450 feet (1.55 acre) to 150 feet by 600 feet (2.07 acres), depending upon pole type and location.				
7. The disturbance areas for Option C would be identical to those for Option B. The only appreciable difference between the two options would be that the Option C structures would be approximately 35 feet taller than those proposed for Option B.				

2.6.2 *Alternative 3 – Alternative BLM Lands Alignment*

Alternative 3 would exit the solar facility in the northeast corner of the site and travel north across BLM lands before rejoining the Alternative 2 alignment described above just south of Pine Tree Canyon Wash. This alternative alignment was evaluated in Kern County’s 2011 EIR (Kern County 2011a).

Figure 1-4a shows the proposed alignment for the Alternative 3 gen-tie route. Table 2-6 summarizes the public and private lands that would be crossed.

Table 2-6. Gen-Tie Land Ownership, Alternative 3 (Alternative BLM Lands Alignment)			
Alternative	Public Lands (miles)	Private/LADWP Lands (miles)	Total (miles)
Alternative 3 (Alternative BLM Lands Alignment)	1.4	0.5	1.9

The ROW for the alignment would generally be 150 feet in width, and would accommodate the 230-kV gen-tie line and a linear service road, plus radial areas at each turn in the alignment. The alignment would enter BLM lands from the northeast corner of the solar facility site and travel briefly northeast, and then due north for approximately 1.2 miles before joining the Alternative 2 alignment to the Barren Ridge Switching Station.

The Alternative 3 gen-tie would be constructed and operated in a similar manner as the Alternative 2 alignment; however, this alignment would require construction of a new, linear service road along its entire length. The roadway would commence at the northeast corner of the private lands solar facility site and would parallel the Alternative 3 gen-tie alignment northward to the Barren Ridge Switching Station. However, the new roadway would not be constructed across Pine Tree Canyon Wash, but would instead terminate at either side of the wash with a vehicle turnaround, thus minimizing impacts to surface hydrology and vegetation across BLM-managed lands. The roadway would be accessed from its southern and northernmost ends via existing designated routes on BLM lands that currently cross the proposed alignment, and also from Pine Tree Canyon Road.

If constructed, this alignment would use approximately 13 wooden H-frame structures along its entire length, with the exception of two steel triple poles at the crossing of Pine Tree Canyon Wash.

It is anticipated that up to 7 acre-feet of water would be required for the 6-month duration of construction of Alternative 3.

Table 2-7 details the temporary and permanent disturbance associated with Alternative 3.

2.6.3 Alternative 4 – Private/LADWP Lands Only

Alternative 4 would be located entirely on private and LADWP-owned lands. Figure 1-4a shows the proposed alignment for the Alternative 4 gen-tie route. Table 2-8 summarizes the ownership of lands that would be crossed.

Table 2-7. Gen-Tie Disturbance Areas, Alternative 3 (Alternative BLM Lands Alignment)¹				
Project Component	Permanent Disturbance² (acres)		Additional Temporary Disturbance³ (acres)	
	Federal Lands	Private/LADWP Lands	Federal Lands	Private/LADWP Lands
Service Roads ⁴	2.6	0.5	0.0	0.0
Support Structures	<0.1	<0.1	18.3	16.2
Pull Sites	0.0	0.0	24.5	14.1
SUBTOTAL	2.6	0.6	42.8	30.3
TOTAL (acres)	3.2		73.1	

LADWP = Los Angeles Department of Water and Power

- Disturbance acreage calculations are based on preliminary designs and may be subject to change based on final design and field conditions. Changes derived during final design would not be expected to vary more than ±10% from that presented here.
- Permanent disturbance is defined as those areas that would be permanently impacted over the life of the project, which include structure and service road footprints.
- Temporary disturbance is defined as those areas that would be disturbed during construction, but that would be returned to natural conditions following construction. These include work areas around structures and conductor pull sites.
- Although new roads would be 12 feet wide, the maximum construction-related disturbance would include a 20-foot width. The entire 20-foot width is considered to be permanent disturbance because roadway maintenance is anticipated throughout the operational phase of the project.

Table 2-8. Gen-Tie Land Ownership, Alternative 4 (Private/LADWP Land Alignment)			
Alternative	Federal Lands (miles)	Private/LADWP Lands (miles)	Total (miles)
Alternative 4 (Private/LADWP Land Alignment)	0.0	3.6	3.6

The easement area for the alignment would be 150 feet in width plus radial areas at turns in the alignment, and would accommodate the 230-kV gen-tie line and a linear service road. The alignment would leave the solar facility site at the southeast corner and cross above SR-14 traveling in an easterly direction. After approximately 0.6 mile, the alignment would turn northward, cross over Phillips Road, and then travel for approximately 0.8 mile, whereupon the alignment would parallel SR-14 along its eastern side for approximately 1,200 feet. The alignment would then turn northwesterly, cross over SR-14, and then travel approximately 800 feet before turning north and traveling approximately 1.2 miles. The alignment would cross over Pine Tree Canyon Wash within this segment. After crossing the wash, the alignment would turn east for approximately 850 feet, and then turn north for approximately 2,000 feet before tying in to the switching station.

The Alternative 4 service road would be located entirely on private lands and would parallel the Alternative 4 gen-tie alignment northward to the Barren Ridge Switching Station. Similar to

Alternative 3, the service road would not be constructed across Pine Tree Canyon Wash, but would instead terminate at either side of the wash with a vehicle turnaround.

A total of 19 private parcels and one parcel owned by LADWP would be crossed by the Alternative 4 gen-tie alignment. The indirect route for this alignment and the two crossings of SR-14 would be required to avoid public land parcels that lie adjacent to the proposed solar facility site.

The Alternative 4 gen-tie would be constructed and operated in a similar manner as Alternatives 2 and 3. It is anticipated that up to 7 acre-feet of water would be required to construct Alternative 4. If constructed, this alignment would use H-frame structures along its entire length, with the exception of two steel triple poles at the crossing of Pine Tree Canyon Wash. In all, a combination of approximately 27 wooden H-frame structures, wooden triple-pole structures, and lattice steel towers would be required for construction of Alternative 4, as well as 3.6 miles of new, linear access roads.

The alignment would cross over SR-14 twice, which would necessitate the procurement of encroachment permits and easements from Caltrans. Similarly, the Alternative 4 alignment would require easements across 19 individual private land parcels and one parcel held by LADWP. Helicopters would need to be used for conductor installation at both SR-14 crossings, as well as at the Pine Tree Canyon Wash crossing.

Table 2-9 details the temporary and permanent disturbances associated with Alternative 4.

The BLM has been informed that if it were to deny the requested grant of ROW, the gen-tie line would proceed to be built over private land, as described under Alternative 4, or some other non-BLM alignment. The Applicant has informed the BLM that it has begun negotiations with some of the private owners to obtain rights to build the gen-tie line on private land if BLM approval is not obtained. Although these negotiations have not been concluded, and an all-private alignment would present substantial challenges to the project schedule and cost, the Applicant has informed the BLM that it would not abandon the approved solar project should BLM approve Alternative 4 in its decision.

2.7 Alternatives Considered But Not Analyzed in Detail

A number of other alternatives for the gen-tie line were considered to connect the solar facility with the Barren Ridge Switching Station. Each was eliminated from detailed analysis based on constraints imposed by existing land use and ownership, policy restrictions, or implementation requirements. These are summarized below.

Table 2-9. Gen-Tie Disturbance Areas, Alternative 4 (Private/LADWP Land Alignment)¹				
Project Component	Permanent Disturbance² (acres)		Additional Temporary Disturbance³ (acres)	
	Federal Land	Private/LADWP Land	Federal Land	Private/LADWP Land
Service Roads ⁴	0.0	8.7	0.0	0.0
Support Structures	0.0	0.1	0.0	60.9
Pull Sites	0.0	0.0	0.0	65.1
SUBTOTAL	0.0	8.7	0.0	126.0
TOTAL (acres)	8.7		126.0	

LADWP = Los Angeles Department of Water and Power

- Disturbance acreage calculations are based on preliminary designs and may be subject to change based on final design and field conditions. Changes derived during final design would not be expected to vary more than ±10% from that presented here.
- Permanent disturbance is defined as those areas that would be permanently impacted over the life of the project, which include structure and service road footprints.
- Temporary disturbance is defined as those areas that would be disturbed during construction, but that would be returned to natural conditions following construction. These include work areas around structures and conductor pull sites.
- Although new roads would be 12 feet wide, the maximum construction-related disturbance would include a 20-foot width. The entire 20-foot width is considered to be permanent disturbance because roadway maintenance is anticipated throughout the operational phase of the project.

2.7.1 Direct Connection to LADWP Transmission Lines Alternative

This alternative (see Figure 1-4b) would connect directly to the existing 230-kV LADWP lines running through the northwest corner of the solar facility private parcel. However, this alternative is infeasible because it would depend on LADWP permitting a private interconnector to tap its lines or to locate facilities on its towers, and LADWP’s Transmission Planning Department has explicitly stated that such an arrangement would violate LADWP policies and would compromise the reliability of the overall system. In addition, the Applicant’s Power Purchase Agreement with LADWP requires that the energy generated at the solar facility be delivered to the Barren Ridge Switching Station. As such, this alternative was eliminated from further consideration.

2.7.2 Shared LADWP Poles and Towers Alternative

This alternative would place the project gen-tie on the existing or planned LADWP transmission structures, as shown in Figure 1-4b. This alternative was deemed infeasible, as LADWP indicated that there are currently no vacancies on the existing and planned poles for additional conductors. LADWP also indicated that there would likely be a mismatch between the existing and planned pole integrity and the weight of an additional conductor. As such, this alternative was eliminated from further consideration.

2.7.3 *Shared LADWP ROW Alternative*

This alternative would place the project gen-tie on new poles within the LADWP's existing or planned ROW easement, as shown in Figure 1-4b, with access to the project gen-tie via the LADWP existing access road. However, there is a lack of adequate ROW width to ensure compliance with CPUC General Order 95 standards if additional poles were to be placed in the LADWP existing or planned ROW. Additionally, this would require placement of additional structures in Pine Tree Canyon Wash, resulting in increased impacts on surface hydrology relative to Alternatives 2, 3, and 4. As such, this alternative was eliminated from further consideration.

2.7.4 *Private Lands Avoidance Alternative*

This alternative is shown in Figure 1-4b, and would be similar to Alternative 2, but would not parallel the LADWP transmission lines as closely as Alternative 2. In the vicinity of the southern bank of Pine Tree Canyon Wash, the alignment would veer east for several hundred feet before continuing northward on Federal lands. This veer to the east would be done to avoid the southeast corner of a private lands parcel (Assessor's Parcel Number 46929004). During the initial development stage of the project, despite repeated efforts, the Applicant was unable to reach acceptable easement terms with the private property owners of the aforementioned parcel. As such, the Alternative 2 alignment was originally designed to veer eastward to avoid the parcels. Since that time, acceptable easement terms have been reached between the Applicant and the property owner, and the alignment has reverted back to the alignment described for Alternative 2. The Alternative 2 alignment was viewed as more favorable since it would provide a greater degree of transmission line consolidation. Therefore, once it became clear that an easement through the private lands parcel was achievable, the private lands avoidance alternative was dropped from further consideration.

2.7.5 *Combination Gen-Tie within Caltrans ROW and Private Lands Alternative*

This alternative (see Figure 1-4b) would route the gen-tie line along SR-14 on its eastern side. The majority of this route would run within an existing transportation ROW controlled by Caltrans, and would also require the acquisition of easements from LADWP and two private landowners along the northern segment of the alignment. A small section of BLM lands would also be crossed. This route is the longest of the five routes considered. Caltrans has given the Applicant notice that this route is not viable due to existing Caltrans policies that limit private developers from running transmission lines longitudinally through public transportation ROWs. Based on these factors, this alternative was eliminated from further consideration.

2.8 Affected Acreage Comparison of Action Alternatives

Table 2-10 compares Alternatives 1 through 4 in terms of acres of ROW required, acres of permanent disturbance, and acres of temporary disturbance. As shown in the table, Alternative 2 (BLM Preferred Alignment) requires the least overall disturbance to both public and private lands compared to the other alternatives.

Table 2-10. Comparison of Alternatives

Alternative	Right-of-Way/Easement Requirement (acres) ¹			New Permanent Disturbance (acres) ¹			Additional New Temporary Disturbance (acres) ¹		
	Federal Land	Private/LADWP Land	Total	Federal Land	Private/LADWP Land	Total	Federal Land	Private/LADWP Land	Total
Alternative 1 (No Action)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alternative 2 (Option A)	43.0	22.3	65.3	1.69	0.82	2.51	12.93	6.85	19.78
Alternative 2 (Option B)	43.0	22.3	65.3	1.99	1.24	3.23	8.11	3.88	11.99
Alternative 2 (Option C)	43.0	22.3	65.3	1.99	1.24	3.23	8.11	3.88	11.99
Alternative 3	40.4	22.8	63.2	2.6	0.6	3.2	42.8	30.3	73.1
Alternative 4	0.0	116.0	116.0	0.0	8.8	8.8	0.0	126.0	126.0

1. Acreage calculations are based on preliminary designs and may be subject to change based on final design and field conditions. Changes derived during final design would not be expected to vary more than ±10% from that presented here.

3. AFFECTED ENVIRONMENT

3.1 Introduction and Overview

The affected environment for each of the alternatives assessed in this document is generally identical for all of the resource areas described below. The alternative alignments are relatively close to one another in proximity and pass through the same habitats and terrain. Therefore, unless otherwise stated, the affected environment descriptions presented below apply to all of the alternatives. For ease of reading, the term “project area” is used to describe the area through which any of the action alternative alignments would pass.

3.1.1 Issues Not Discussed with Rationale

A number of topical issue areas are not evaluated in this EA, generally because the identified resources are not present within or around the project area, or because implementation of any of the several alternatives would clearly have no effect with respect to the topic being evaluated. These issue areas are listed below, with an explanation of why they are not being evaluated further in this EA.

Agricultural Lands

The project area is classified as “non-agricultural” by the California Farmland Mapping and Monitoring Program (California Department of Conservation, 2010), which is a classification used for lands that present constraints for agricultural use. The project area is currently not under cultivation, nor is there evidence that the project area has been used previously for cultivation or other agricultural purposes beyond infrequent ephemeral grazing. Grazing is discussed further in Sections 3.9 and 4.7. The area is arid, and water for irrigation is not readily available. Based on each of these factors, the proposed project would have no effect on agricultural lands. Accordingly, this resource will not be analyzed further.

Mineral Resources

During preparation of the EIR for the solar project, Kern County determined that the project area is not a part of a designated mineral recovery area or within an area that has been determined to contain appreciable quantities of minerals (Kern County Planning and Community Development Department, 2011b). The closest mine to the project area is the P.V. Clay Mine, which is located approximately 5.5 miles to the northwest. There would be no loss of access to known or unknown mineral resource deposits as a result of implementation of any of the action alternatives. Accordingly, this topic will not be analyzed further.

Special Designations

Areas of Critical Environmental Concern/Desert Wildlife Management Areas

The proposed project area is not located within or adjacent to a BLM-designated Area of Critical Environmental Concern (ACEC) or a Desert Wildlife Management Area (DWMA). The nearest ACEC is the Jawbone/Butterbrecht ACEC, approximately 3 miles north of the project area.

Accordingly, ACECs or Desert Wildlife Management Areas/DWMAs will not be analyzed further.

National Scenic and Historic Trails

No National Scenic or Historic Trails are in the vicinity of the project area. The closest National Scenic Trail is the Pacific Crest Trail, the nearest segment of which is located more than 10 miles to the west of the project area. The Pacific Crest Trail is separated from the project area by rugged, mountainous terrain. Based on the absence of these resources from the project vicinity, these resources will not be analyzed further.

Wilderness, Wilderness Characteristics, and Wild and Scenic Rivers

The project area is not located within or adjacent to a designated Wilderness Area, Wilderness Study Area, or Wild and Scenic River Area, nor does the area contain lands with Wilderness characteristics. The nearest designated Wilderness Area is the El Paso Mountains Wilderness, located approximately 20 miles northeast of the project area. The nearest Wild and Scenic River is the Kern River, located more than 40 miles from the project area. Based on the distance of the project area from these resources, the project would have no effect on Wilderness or Wild and Scenic Rivers. Accordingly, this topic will not be analyzed further.

Wild Horses and Burros

There are no known populations of wild horses or burros in the project area, and there is no Herd Management Area in the vicinity. The closest Herd Management Area is the Centennial Herd Management Area, which is located north of the City of Ridgecrest, approximately 70 miles north of the project area. Based on the absence of a Herd Management Area from the project vicinity, this resource will not be analyzed further.

3.2 Air Resources

The proposed project is located within the Mojave Desert Air Basin (MDAB). The Eastern Kern Air Pollution Control District (EKAPCD) is the government agency that regulates sources of air pollution within the project area. As required by the Federal Clean Air Act, air basins or portions thereof have been classified as “attainment,” “nonattainment,” or “unclassified” for each criteria air pollutant based on whether or not the standards have been achieved, or if there is insufficient data to determine if standards have been achieved. Currently, the portion of the MDAB within which the project area is located is in moderate “nonattainment” for the Federal 8-hour ozone standard. Likewise, this portion of the MDAB is in nonattainment of the State 1-hour and 8-hour standards for ozone and particulate matter up to 10 micrometers in diameter (PM₁₀). The MDAB is currently in attainment and/or unclassified status for all other Federal ambient air quality standards (EKAPCD 2014). It is also in attainment and/or unclassified status for all other State ambient air quality standards.

Jurisdictions within nonattainment areas are also required to prepare an air quality management plan that includes strategies for achieving attainment. The EKAPCD originally published its ozone air quality management plan in 1991. In 1994, this plan was amended to reflect findings showing that there were no self-generated exceedances of ozone standards in the EKAPCD; rather, all exceedances occurred during transport days. As a moderate ozone nonattainment area, the EKAPCD is required to adopt retrofit Reasonably Available Control Technology rules for all sources of ozone precursor emissions. The EKAPCD has fulfilled this mandate by adopting a number of rules between 1987 and 2005 that aim to reduce ozone precursor emissions.

To maintain the attainment status of the Federal PM₁₀ standard, the EKAPCD established Rule 402, which states that “no person shall cause or allow emissions of fugitive dust to remain visible beyond the property line of the emissions sources and requires that for any large operations, a person shall not cause or allow downwind PM₁₀ concentrations to increase more than 50 micrograms per cubic meter above upwind concentrations.” Rule 402 applies to bulk storage, earthmoving, construction and demolition, and human-caused conditions resulting in wind erosion.

3.3 Biological Resources – Vegetation

This section describes the biological resources present or potentially present within the project area for all three action alternatives. The gently sloping and undulating landscape of the project area ranges in elevations from approximately 2,420 to 2,670 feet, and it is relatively homogenous along each of the alternative gen-tie alignments. Given the homogeneity of the project area, biological resources potentially affected by each project alternative are similar; therefore, the discussion of biological resources in the following subsections applies to all project alternatives.

Sources consulted to summarize the existing biological conditions of the project area included the following technical reports: Biological Resources Assessment for the RE Kern County Desert Solar Projects (Rincon Consultants 2011a); Supplemental Biological Results: RE Rosamond One and Two, RE Barren Ridge 1 (Rincon Consultants 2011b); Barren Ridge Photovoltaic Electrical Generation Facilities Jurisdictional Delineation Letter Report (AECOM 2011a); Rare Plant Survey Report for the Barren Ridge Solar PV and Generation Tie-Line Project (AECOM 2013); and Golden Eagle (*Aquila chrysaetos*) Analysis for the Recurrent Energy Barren Ridge Solar 1 Project (AECOM 2014a). Biological surveys conducted for the proposed project are summarized in Table 3.3-1.

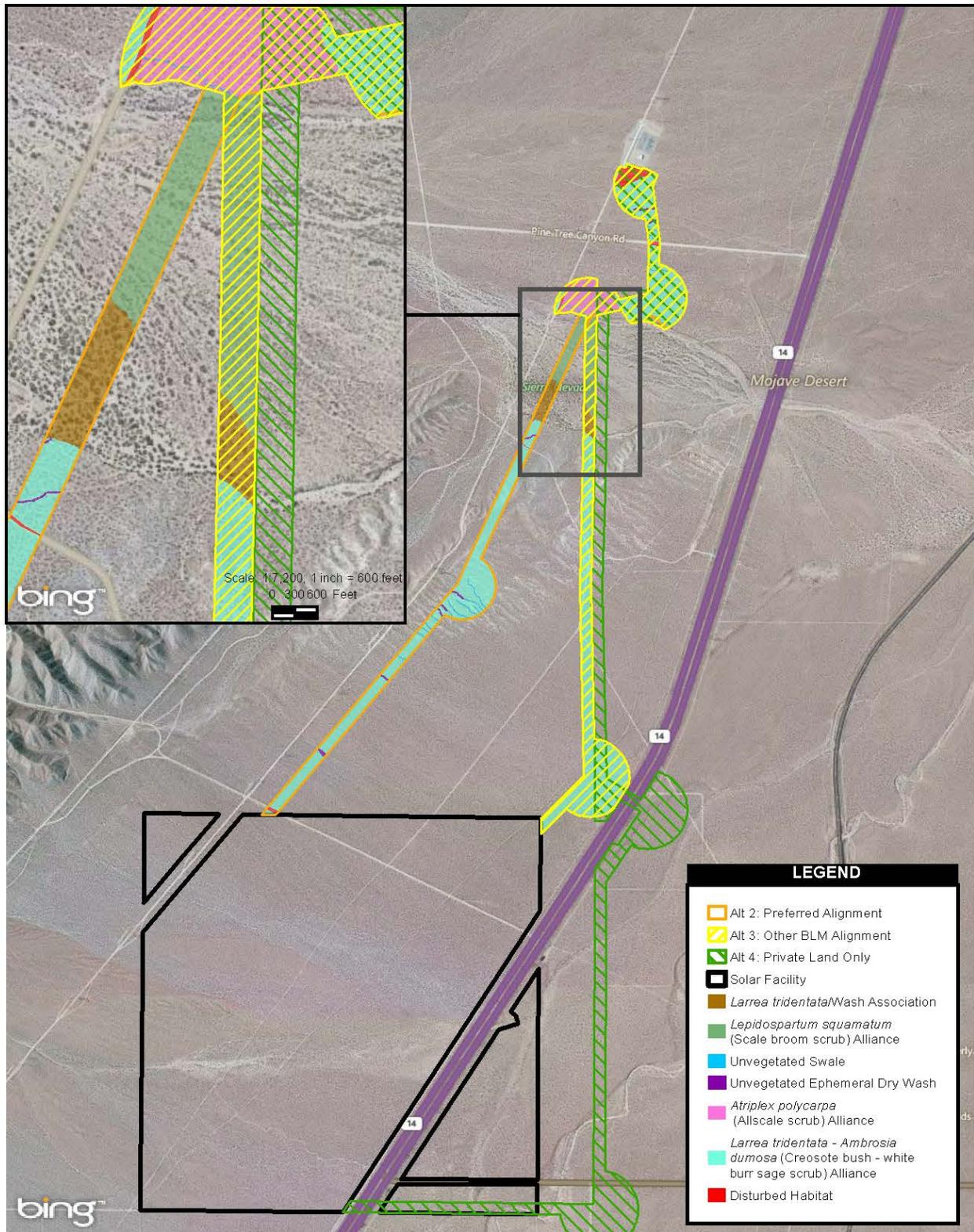
Table 3.3-1. Summary of Biological Resource Surveys Conducted for the Alternatives	
Survey Type	Survey Dates¹
Field Reconnaissance	March 18–19, 2010; October 19, 2010; March 23, 2011
Rare Plant Surveys	April 11–14, 2011; May 17–19, 2011; October 21–23, 2013; March 3–6, 2014
Desert Tortoise Protocol Surveys	September 29–October 3, 2010; April 23–25, 2011; May 1–5, 2011
Desert Tortoise Habitat Assessment – Alternative 2 Right-of-Way	March 4 and 5, 2014
Burrowing Owl Surveys	September 29–October 3, 2010; April 23–25, 2011; May 1–5, 2011; May 10–11 and 30–31, 2011
Raptor Surveys	May 10–11 and 30–31, 2011
Jurisdictional Evaluation ²	April 8 and 14, 2011
<p>1. Survey dates include surveys conducted for both the proposed gen-tie alternative alignments and the adjacent private lands solar facility.</p> <p>2. Results documented during the jurisdictional evaluation applicable to biological resources are summarized in this section. Results of the jurisdictional evaluation are summarized in Section 3.20.3.</p>	

3.3.1 *Vegetation Communities*

In accordance with the vegetation classification system presented in *A Manual of California Vegetation* (Sawyer et al. 2009), two upland vegetation communities were mapped within the project area: the creosote bush-white bursage scrub alliance and the allscale scrub alliance. In addition, four types of aquatic features were mapped within the project area (AECOM 2011a, 2014f; Rincon 2011b). Aquatic-related vegetation communities were classified according to both the *Manual of California Vegetation* (Sawyer et al. 2009) and *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979), and include unvegetated ephemeral dry wash, creosote/wash association, unvegetated swales, and scalebroom scrub alliance (xeric riparian habitat) associated with drainages in the project area. Vegetation communities mapped within the project area are shown in Figure 3.3-1 and described in the following subsections. Section 3.20.3 provides detail regarding potential jurisdictional waters present within the project area.

Creosote Bush – White Bursage Scrub Alliance

The creosote bush–white bursage scrub alliance occurs throughout the project area and is dominated by creosote (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Associated shrubs and subshrubs are allscale saltbush (*Atriplex polycarpa*), Nevada ephedra (*Ephedra nevadensis*), scalebroom (*Lepidospartum squamatum*), Cooper’s goldenbush (*Ericameria*



Source: AECOM 2013; RE Cinco 2013; Image courtesy of USGS Image courtesy of the Nevada State Mapping Advisory Committee © 2014 Microsoft Corporation © 2014 Nokia © AND

Figure 3.3-1

Vegetation Communities

cooperi), rubber rabbitbrush (*Ericameria nauseosa*), California buckwheat (*Eriogonum fasciculatum* var. *poliofolium*), cheesebush (*Ambrosia [=Hymenoclea] salsola*), winterfat (*Krascheninnikovia lanata*), and Anderson's desert thorn (*Lycium andersonii*).

Cacti present include Wiggins' cholla (*Cylindropuntia echinocarpa*). Common herbaceous plants include fiddleneck (*Amsinckia* sp.), filaree (*Erodium* sp.), chia (*Salvia columbariae*), and angled stem buckwheat (*Eriogonum angulosum*). Grasses present in this community consist of nonnative species: red brome (*Bromus rubens*), cheat grass (*B. tectorum*), ripgut (*B. diandrus*), and rattail fescue (*Vulpia myuros*). This association also occurs in patches within the on-site ephemeral stream/alluvial fan; the vegetation in these areas is typically larger and more robust than the upland areas of creosote bush–white bur sage scrub alliance.

Allscale Scrub Alliance

The allscale scrub alliance occurs in an upland area where allscale saltbush (*Atriplex polycarpa*) becomes co-dominant with the adjoining creosote bush–white bursage scrub alliance.

Creosote/Wash Association

The creosote/wash scrub association is a wash-dependent community identical in floral composition to the creosote bush–white bur sage scrub alliance (see above). This community occurs where creosote bush is present in an alluvial fan or ephemeral stream. Vegetation in this community is frequently larger and more robust than the associated non-wash-dependent community.

Scale Broom Scrub Alliance

The scale broom scrub alliance is a vegetation community that is wash-dependent; the dominant species is scale broom (*Lepidospartum squamatum*). The scale broom scrub alliance in the project area is present in the ephemeral wash features of Pine Tree Canyon Wash, and it defines the limit of State jurisdictional waters in the project area.

Unvegetated Ephemeral Dry Wash

The unvegetated ephemeral dry washes occurring within the project area are generally linear; however, the southeast ephemeral dry wash does present some sinuosity. The largest unvegetated ephemeral dry wash abates into the landscape within the project area and forms into an unvegetated swale complex at its eastern terminus. The unvegetated ephemeral dry wash features within the gen-tie alignment are entirely within Pine Tree Canyon Wash. This wash presents significant sinuosity, although it narrows where its course passes under SR-14. There is no equivalent mapping unit for the unvegetated ephemeral dry wash in A Manual of California Vegetation (Sawyer et al. 2009).

Unvegetated Swale

The unvegetated swale features occurring within the project area are mostly associated with upland habitats (i.e., desert saltbush scrub and Mojave creosote bush scrub). These swales present as multiple linear features forming a significant component of a larger drainage network. The swale features range from approximately 1 to 5 feet in width, and collectively compose limited bajada-type topography within the project area. There is no equivalent mapping unit for the unvegetated ephemeral dry wash in A Manual of California Vegetation (Sawyer et al. 2009).

3.3.2 *Special-Status Plant Species*

Special-status plant species herein include those that are (1) listed, proposed for listing, or are candidates for listing as threatened or endangered by USFWS under the Federal Endangered Species Act (ESA); (2) listed, proposed for listing, or candidates for listing as rare, threatened, or endangered by the California Department of Fish and Wildlife (CDFW) under the California Endangered Species Act (CESA); (3) designated by the BLM State Director for special management consideration (i.e., BLM Sensitive Species); or (4) categorized by the California Native Plant Society (CNPS) into one of the six California Rare Plant Ranks (i.e., Rank 1A, 1B, 2A, 2B, 3, or 4). The CNPS is a statewide plant conservation organization that has developed an inventory of California's sensitive plant species. The CNPS California Rare Plant Rank system is sanctioned by CDFW and essentially serves as an early warning list of potential candidate species for threatened or endangered status.

Special-status plant species previously recorded from the region are listed in Table 3.3-2. Seventeen special-status plant species have moderate to high potential to occur within the project area based on site conditions. None of these special-status plant species were detected within the project area or immediate vicinity (i.e., within approximately 100 feet of the alignment alternatives on BLM land) during focused rare plant surveys in spring 2011 and fall 2013, or during vegetation mapping surveys in 2010 (AECOM 2014f; Rincon 2011b). Although no sensitive plant species were observed in the project area, drought conditions prevailed during both surveys, and species may be observed in years of sufficient rainfall.

Of the 17 special-status plants with potential to occur in the project area, one is listed as federally endangered. Bakersfield cactus (*Opuntia basilaris* var. *treleasei*) was listed as federally endangered in July 1990. The nearest known occurrence of this species is approximately 15 miles southwest of the project area near the town of Mojave. This species was not detected during project rare plant surveys, but suitable gravelly habitat does occur within the project area.

Table 3.3-2. Potentially Occurring Special-Status Plant Species in the Project Area			
Species	Status	Natural History	Potential Occurrence in the Project Area
Spanish needle onion (<i>Allium shevockii</i>)	CNPS Rank 1B.3	Perennial bulbiferous herb. Occurs in rocky areas in pinyon and juniper woodland and upper montane coniferous forest. Flowers May to June.	Low potential for occurrence due to lack of suitable woodland and forest habitat.
Alkali mariposa lily (<i>Calochortus striatus</i>)	CNPS Rank 1B.2	Herbaceous perennial geophyte with large pink, radially striped flowers. Occurs in alkali seeps and seasonally moist locations. Flowers April to June.	Low potential for occurrence due to lack of suitable alkali seep habitat.
Kern County evening primrose (<i>Camissonia kernensis</i> ssp. <i>kernensis</i>)	CNPS Rank 4.3	Annual herb on sandy, gravelly, granitic soils. Found in chaparral, Joshua tree woodland, and pinyon and juniper woodlands. Flowers March to May.	Low potential for occurrence due to lack of suitable woodland or chaparral habitat.
White pygmy-poppy (<i>Canbya candida</i>)	CNPS Rank 4.2	Annual herb on sandy and gravelly soils. Found in Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodlands. Flowers March to June.	High potential to occur in desert scrub habitat on-site.
Mojave paintbrush (<i>Castilleja plagiotoma</i>)	CNPS Rank 4.3	Perennial herb (hemiparasitic) found in great basin scrub (alluvial), Joshua tree woodland, lower montane coniferous forest, and pinyon and juniper woodland. Flowers April to June.	Moderate potential to occur in desert scrub in the alluvial washes on-site.
Death Valley sandmat (<i>Chamaesyce vallis-mortae</i>)	CNPS Rank 4.2	Perennial herb found in sandy or gravelly soils in Mojavean desert scrub. Flowers May to October.	High potential to occur on-site in desert scrub.
Mojave spineflower (<i>Chorizanthe spinosa</i>)	CNPS Rank 4.2	Small ephemeral annual on sandy and gravelly soils. Sometimes in alkaline areas, chenopod scrub, Joshua tree woodland, Mojavean desert scrub, and playas. Flowers April to June.	Moderate potential to occur in desert scrub habitat on-site.
Kern Canyon clarkia (<i>Clarkia xantiana</i> ssp. <i>parviflora</i>)	CNPS Rank 4.2	Annual herb often found in sandy, sometimes rocky slopes or roadsides. Prefers chaparral, cismontane woodland, great basin scrub, and valley and foothill grassland. Flowers May to June.	Moderate potential to occur in sandy or rocky soils in desert scrub habitat on-site.
Streambank spring beauty (<i>Claytonia parviflora</i> ssp. <i>grandiflora</i>)	CNPS Rank 4.2	Annual herb found in rocky soils in cismontane woodland habitat. Flowers February to May.	Low potential to occur on-site due to lack of cismontane woodland habitat.
Desert springparsley (<i>Cymopterus deserticola</i>)	CNPS Rank 1B.2	Low-growing herbaceous perennial with silvery parsley-like leaves and a ball-shaped inflorescence. Found in sandy soils in Joshua tree woodland and Mojavean desert scrub. Flowers March to May.	High potential to occur in the desert scrub on-site.

Table 3.3-2. Potentially Occurring Special-Status Plant Species in the Project Area			
Species	Status	Natural History	Potential Occurrence in the Project Area
Red Rock tarplant (<i>Deinandra arida</i>)	State Rare; CNPS Rank 1B.2	Annual herb found in clay and volcanic tuff in Mojavean desert scrub. Flowers April to November.	Moderate potential to occur in the rocky desert scrub and wash habitats on-site.
Mohave tarplant (<i>Deinandra mohavensis</i>)	State Endangered; CNPS Rank 1B.3	Annual in vernal moist and alkali areas in drainages. Flowers July to October.	Moderate to low potential to occur in the washes on-site. No vernal moist spring habitat is present on-site.
Recurved larkspur (<i>Delphinium recurvatum</i>)	CNPS Rank 1B.2	Slender herbaceous perennial to nearly 3 feet tall with delicate pale blue flowers growing in deeper fine soil with grasses and herbs. Flowers March to June.	Low potential to occur on-site due to lack of grasslands.
Limestone dudleya (<i>Dudleya abramsii</i> ssp. <i>calcicola</i>)	CNPS Rank 4.3	Perennial succulent herb found in carbonate soils in chaparral and pinyon and juniper woodland. Flowers April to June.	Low potential to occur on-site due to lack of chaparral and woodland habitats.
Tracy's eriastrum (<i>Eriastrum tracyi</i>)	State Rare; CNPS Rank 3.2	Annual herb found in chaparral and cismontane woodland. Flowers May to July.	Low potential to occur on-site due to lack of chaparral and woodland habitats.
Mohave woolly sunflower (<i>Eriophyllum mohavense</i>)	CNPS Rank 1B.2	Small ephemeral annual on sandy and gravelly soil in Mojavean desert scrub, chenopod scrub, and playas. Flowers March to May.	Moderate potential to occur on-site in desert scrub habitat.
Kern buckwheat (<i>Eriogonum kennedyi</i> var. <i>pinicola</i>)	CNPS Rank 1B.1	Perennial herb 2 to 6 inches tall in open places on clay soil. Found in chaparral and pinyon and juniper woodland. Flowers May to June.	Low potential to occur on-site due to lack of chaparral and woodland habitats.
Red Rock Canyon monkeyflower (<i>Erythranthe rhodopetra</i>)	CNPS Rank 1B.1	Annual herb found in sandy, canyon washes, and Mojavean desert scrub. Flowers March to April.	High potential to occur on-site in Pine Tree Canyon Wash and moderate potential in smaller washes on-site.
Red Rock poppy (<i>Eschscholzia minutiflora</i> ssp. <i>twisselmannii</i>)	CNPS Rank 1B.2	Yellow-flowered annual approximately 1 foot or more tall that occurs on volcanic tuff material. Flowers March to May.	Moderate potential to occur on-site in soils with volcanic tuff.
Pale-yellow layia (<i>Layia heterotricha</i>)	CNPS Rank 1B.1	Annual herb found in alkaline or clay soils in cismontane woodland, pinyon and juniper woodland, and grasslands.	Low potential to occur on-site due to the lack of woodlands, coastal scrub, and grassland.
Sagebrush loeflingia (<i>Loeflingia squarrosa</i> var. <i>artemisiarum</i>)	CNPS Rank 2B.2	Minute annual with spine-tipped leaves on sandy soil and dunes. The Jepson Manual does not recognize variety, but CNPS does. Flowers April to May.	Moderate potential to occur in sandy soils.

Table 3.3-2. Potentially Occurring Special-Status Plant Species in the Project Area			
Species	Status	Natural History	Potential Occurrence in the Project Area
Solitary blazing star (<i>Mentzelia eremophila</i>)	CNPS Rank 4.2	Annual herb found in Mojavean desert scrub. Flowers March to May.	High potential to occur in desert scrub on-site.
Creamy blazing star (<i>Mentzelia tridentata</i>)	CNPS Rank 1B.3	Annual with somewhat thick dark-green leaves and cream-colored flowers on coarse rock gravel. Found in Mojavean desert scrub. Flowers March to May.	High potential to occur in desert scrub on-site.
Tehachapi monardella (<i>Monardella linoides</i> ssp. <i>oblonga</i>)	CNPS Rank 1B.3	Perennial rhizomatous herb found in lower montane coniferous forest, pinyon and juniper woodland, and upper montane coniferous forest. Flowers June to August.	Low potential to occur on-site due to lack of woodland and forest habitat.
Large-flowered nemacladus (<i>Nemacladus secundiflorus</i> var. <i>secundiflorus</i>)	CNPS Rank 4.3	Annual herb found in gravelly openings in chaparral and valley and foothill grassland. Flowers April to June.	Low potential to occur on-site due to lack of chaparral and grassland habitats.
Bakersfield cactus (<i>Opuntia basilaris</i> var. <i>treleasei</i>)	Federally Endangered; State Endangered; CNPS Rank 1B.1	Perennial stem succulent. Found in sandy or gravelly areas of chenopod scrub, cismontane woodland, and valley and foothill grassland.	Low potential to occur on-site in desert scrub habitat. The species was not detected during 100% coverage surveys of the Alternative 2 and 3 alignments.
Fragile pentachaeta (<i>Pentachaeta fragilis</i>)	CNPS Rank 4.3	Annual herb found in foothill woodlands. Flowers March to June.	Low potential to occur on-site due to lack of woodland habitat.
Adobe yampah (<i>Perideridia pringlei</i>)	CNPS Rank 4.3	Perennial herb found in chaparral and foothill woodland. Flowers April to June.	Low potential to occur on-site due to lack of woodland and chaparral habitat.
Hubby's phacelia (<i>Phacelia hubbyi</i>)	CNPS Rank 4.2	Annual herb found on gravelly or rocky slopes in chaparral or coastal scrub. Flowers April to June.	Low potential to occur on-site due to lack of coastal scrub and chaparral habitat.
Charlotte's phacelia (<i>Phacelia nashiana</i>)	CNPS Rank 1B.2	Low-growing annual with somewhat thick leaves and deep-blue flowers growing on gravelly and talus slopes. Flowers March to June.	Moderate potential to occur on-site. Known from the general vicinity of the site and its surroundings.
Mojave fish-hook cactus (<i>Sclerocactus polyancistrus</i>)	CNPS Rank 4.2	Perennial stem succulent found in Mojave desert scrub and pinyon and juniper woodland.	Moderate potential to occur on-site in desert scrub.

CNPS = California Native Plant Society

3.3.3 *Invasive, Nonnative Plant Species*

Two invasive plant species have been documented sporadically within the project area: Mediterranean grass (*Schismus barbatus*) and Saharan mustard (*Brassica tournefortii*). These species and their presence within the project area are briefly described below.

- Mediterranean grass was observed infrequently within the project area in association with creosote bush. The California Invasive Plant Council (Cal-IPC) has determined that this plant has a limited invasiveness rating in California (Cal-IPC 2006). The BLM and other agencies recognize that because of the widespread distribution of Mediterranean grass, this species is not considered feasible to control, especially in relatively small areas such as the project area; therefore, weed abatement efforts for Mediterranean grass are not typically required.
- Saharan mustard was observed southeast of the project area in a built drainage ditch running parallel to SR-14. Cal-IPC has declared this plant highly invasive (Cal-IPC 2006). The BLM and other agencies recognize that because of the widespread distribution of Saharan mustard, this species is not considered feasible to eradicate, especially in relatively small areas such as the project area; however, weed abatement efforts for Saharan mustard would be implemented to control the potential for this species to spread within project disturbance areas.

3.4 **Biological Resources – Wildlife**

Wildlife species occurring in the project area are typical of those commonly found in creosote bush–white bursage scrub habitat of the western Mojave Desert. Mammals observed during surveys conducted for the proposed project included white-tailed antelope squirrel (*Ammospermophilus leucurus*), black-tailed jackrabbit (*Lepus californicus*), and coyote (*Canis latrans*; scat only). In addition, four desert kit fox pups, an uncommon inhabitant of the Mojave Desert, were observed in a burrow south of the project area during 2011 surveys. Reptiles observed included tiger whiptail (*Aspidoscelis tigris*), zebra-tailed lizard (*Callisaurus draconoides*), Mohave rattlesnake (*Crotalus scutulatus*), long-nosed leopard lizard (*Gambelia wislizenii*), and common side-blotched lizard (*Uta stansburiana*). Dry desert habitats typically support a low diversity of resident bird species, although a greater diversity of bird species may be temporarily observed during migration. Non-raptor bird species observed included horned lark (*Eremophila alpestris*), common raven (*Corvus corax*), rock wren (*Salpinctes obsoletus*), black-throated sparrow (*Amphispiza bilineata*), white-crowned sparrow (*Zonotrichia leucophrys*), and house finch (*Carpodacus mexicanus*). All of these bird species except white-crowned sparrow may nest in the project area or in the immediate vicinity.

The project area does not lie within a wildlife connectivity area as identified by the California Essential Habitat Connectivity Project (Spencer et al. 2010). However, at the local level, wildlife species are likely to use the project area and surrounding large expanses of open vegetation for

movement related to dispersal and home range activities. Given the relatively uniform landscape and extent of open vegetation in the project area and vicinity, wildlife is not likely concentrated through narrow corridors. East of the project area, north/south-orientated SR-14 poses an existing barrier to wildlife movement. Traffic is heavy enough on this road to pose risks to species attempting to cross the road at-grade; nevertheless, some wildlife species likely cross SR-14 at-grade or through several undercrossings that pass beneath the highway. Movement likely becomes increasingly concentrated west of the project area, toward Barren Ridge and the foothills of the southern Sierra Nevada. Movement west of the project area likely becomes concentrated within prominent canyons, such as Jawbone and Pine Tree Canyons.

Regionally, the proposed project is located within the Pacific Flyway, a major north/south migration route for birds that travel between North and South America. Hundreds of species use this migratory route each year. Several well-studied migrant stopover sites provide a picture of the diversity of migrant birds in the vicinity of the project area. More than 210 species of birds have been recorded at Butterbrecht Spring, located approximately 12.5 miles north of the project area (eBird 2014). More than 240 species of birds have been recorded at California City Central Park, which is located approximately 8.5 miles southeast of the project area (eBird 2014). Although the project area lacks open water or lushly vegetated stopover habitat that might attract migrant birds, a large diversity of species could be expected to pass through the project area during migratory periods due to its location along the Pacific Flyway.

Koehn Dry Lake is located approximately 11 miles to the northeast of the project area. Koehn Dry Lake is designated as an Audubon State Important Bird Area and is part of the North Mojave Dry Lakes Important Bird Area (Audubon 2014). This Important Bird Area consists of four large dry lakes and associated seasonal wetlands between Ridgecrest and Barstow in the northern Mojave Desert: China Lake, Searles Dry Lake, Koehn Dry Lake, and Harper Dry Lake (Audubon 2014). Thousands of water birds stop over at these lakes during migration (Audubon 2014), and more than 40 species of birds have been recorded at Koehn Dry Lake (eBird 2014).

3.4.1 *Special-Status Wildlife Species*

Special-status wildlife species herein include species that are (1) listed, proposed for listing, or candidates for listing as threatened or endangered by USFWS under the Federal ESA; (2) afforded protections under the Bald and Golden Eagle Protection Act (BGEPA); (3) afforded protections under the Migratory Bird Treaty Act (MBTA); (4) listed, proposed for listing, or candidates for listing as threatened or endangered by CDFW under the CESA; (5) identified as a Fully Protected Species or Species of Special Concern (SSC) by CDFW; (6) afforded protection per the California Fish and Game Code Section 3503 et seq.; or (7) designated by the BLM State Director for special management consideration (i.e., BLM Sensitive Species).

Special-status wildlife species documented during biological surveys or with the potential to occur based on site conditions are discussed in the following subsections. For the purposes of

this section, species are organized by federally listed species (i.e., species listed under the Federal ESA), State-listed species (i.e., species listed under the CESA), BLM sensitive species, and other special-status species (i.e., species afforded protections under the BGEPA and MBTA, or identified by CDFW as an SSC or Fully Protected Species). In some instances, species fall into multiple categories (e.g., a species that is both federally and State listed).

Federally Listed Species

Agassiz's Desert Tortoise

Agassiz's desert tortoise is listed as threatened by both USFWS and CDFW. Critical habitat was designated by USFWS for desert tortoise in February 1994 (59 Federal Register 5820). The project area is not located within desert tortoise critical habitat; the nearest critical habitat area designated for desert tortoise is approximately 11 miles northeast of the project area (the Fremont-Kramer Critical Habitat Unit).

The project area is located at the western edge of the desert tortoise's typical range, and the project area provides moderately suitable habitat for the species. The Mojave creosote bush scrub that dominates the project area is a vegetation community that is characteristic of desert tortoise habitat. Also, gravelly loamy sand and loamy sandy soils present within the project area are suitable for digging burrows, pallets (i.e., shallow depressions used to regulate body temperature and reduce water loss), and rain catchment basins.

Habitat within the project area is degraded due to proximity to existing transmission line corridors, BLM recreational trails, and SR-14. Data from several studies (Boarman 1994; LaRue 1993; Marlow et al. 1997; Nicholson 1978) strongly support the hypothesis that heavily traveled roads are mortality sinks for tortoises. Further, Von Seckendorff-Hoff and Marlow (2002) suggested that heavily traveled roads generate a "dead zone" on either side of the road where desert tortoise densities are depressed. The size of depressed zones around roads varies with the amount of use of the road, among other factors. Although the exact size of the dead zone associated with SR-14 is not known, traffic on the road is likely to be heavy enough to depress the density of tortoises around the road and to reduce connectivity of desert tortoise habitat in the area.

Desert tortoise surveys were conducted in accordance with the Pre-Project Survey Protocol for Potential Desert Tortoise Habitats (USFWS 2010) for the Alternative 3 alignment in April and May 2011 (Sundance Biology 2011). The survey area for the Alternative 3 alignment encompassed approximately 1,162 total acres and included seven, 10-meter transects within the alignment ROW, and three, 200-meter zone-of-influence transects extending beyond the ROW. Three desert tortoises were observed during these protocol surveys, all of which had a midline carapace length greater than 160 millimeters. Desert tortoise sign observed during these protocol surveys included one desert tortoise burrow, five observations of desert tortoise scat, and one desert tortoise skeletal remains (Rincon 2011b). Two additional desert tortoise individuals were

incidentally observed during other resource surveys for the project. One individual was observed just north of the Alternative 3 alignment ROW during 2011 botanical surveys, and one individual was observed within the Alternative 2 alignment ROW during a 2014 habitat assessment survey. It is unknown if these were additional observations of the individuals observed during 2011 protocol surveys.

All three project alternatives are composed of suitable desert tortoise habitat; therefore, it is assumed that desert tortoise could occur at generally similar densities in the project area associated with each alternative alignment.

State-Listed Species

Mohave Ground Squirrel

Mohave ground squirrel is listed by CDFW as threatened and designated as a BLM Sensitive Species. The entire project area, located on the western edge of the species' range, provides suitable creosote bush scrub habitat. This species has been documented in the vicinity of the project area, including within Jawbone Canyon and near the southern edge of Red Rock Canyon State Park. All public lands west of SR-14 and north of the project area are included in the Mohave Ground Squirrel Conservation Area, as designated in the West Mojave Plan (BLM 2005); the project area lies outside the Mohave Ground Squirrel Conservation Area. Although potentially suitable burrows were observed during field surveys, they were not common in the project area.

Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is listed by CDFW as threatened and designated as a BLM Sensitive Species. The project area supports suitable foraging habitat for Swainson's hawk; however, no suitable nesting habitat occurs in the project area. This species was not observed during biological surveys conducted for the project.

BLM Sensitive Species

Burrowing Owl

Burrowing owl is designated as a BLM Sensitive Species and as an SSC by CDFW. Burrowing owl surveys were conducted within the project area by Sundance Biology in 2011 per the protocols outlined in the Staff Report on Burrowing Owl Mitigation (CDFG 1995). No burrowing owls were detected within the project area during protocol surveys for the species. However, four potential burrows or burrow complexes were observed south of the project area, in and around the adjacent proposed private lands solar facility site. Fresh burrowing owl sign was detected at one of these burrows in 2011; however, no owls were observed. The three remaining potential burrows had evidence of old whitewash and/or pellets, with small mammal bones/remains present. It is unknown when burrowing owls may have occupied these burrows.

Other Special-Status Species

American Badger

American badger is designated as an SSC by CDFW. The project area provides suitable habitat for American badger, and three badger dens were observed in the project area and immediate vicinity. One American badger was observed in the vicinity in a burrow west of SR-14 in 2011.

Other Raptors and Migratory Birds

Other raptors and migratory birds are afforded protections under California Fish and Game Code Section 3503 et seq. and the MBTA. Two raptor species, ferruginous hawk (*Buteo regalis*) and red-tailed hawk (*Buteo jamaicensis*), were detected during surveys conducted for the project in 2011. The ferruginous hawk was observed soaring over the ridgeline west of the project area in April 2011. This species does not nest in California (Polite and Pratt 1999), and the project area only contains suitable wintering and foraging habitat for this species. The red-tailed hawk was observed soaring along the ridgeline west of the project area in May 2011. Additionally, a red-tailed hawk nest was detected on an existing utility tower west of the project area. No other raptor species were detected during surveys, although it is likely that other species do occur in the project area. Trees and cliffs suitable for raptor nesting are not present within the project area; however, raptors may nest on existing utility towers.

All avian species detected during surveys for the project are protected under the MBTA. Although avian species are protected by the provisions of the MBTA, not all are considered rare, threatened, or endangered by Federal, State, or local regulations, or in need of conservation. Two additional species not detected during surveys for the proposed project—loggerhead shrike (*Lanius ludovicianus*) and Le Conte's thrasher (*Toxostoma lecontei*)—are known to be year-round or winter residents in the western Mojave Desert and may occur within the project area. Both loggerhead shrike and Le Conte's thrasher are designated as an SSC by CDFW.

The project area also contains suitable foraging habitat for golden eagle, a species afforded specific protections under the BGEPA and a CDFW Fully Protected Species. However, suitable golden eagle nesting habitat is not present within the project area. The closest active golden eagle nest in 2011 was documented approximately 5 miles west of the project area (CH2M Hill 2011).

Invasive, Nonnative Wildlife Species

The project area contains evidence of domestic livestock presence (e.g., cow dung, domestic sheep scat). BLM lands contained within the Alternative 2 and 3 alignments are part of the Hansen Common Grazing Allotment, which is used during favorable years for sheep grazing. Excessive grazing by domestic livestock can result in deterioration of desert habitats by altering plant species composition and reducing cover of shrubs and perennial grasses. However, grazing in the area is infrequent, and grazing pressure is light. No evidence of excessive grazing, such as increased erosion, soil crust destruction, or denuded areas, is present. No other nonnative wildlife species have been documented during surveys conducted for the project.

3.5 Climate Change

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs), in reference to the fact that greenhouses retain heat. Principal greenhouse gases include carbon dioxide (CO₂), methane, nitrous oxide, sulfur hexafluoride from high-voltage power equipment, and hydrofluorocarbons and perfluorocarbons from refrigeration/chiller equipment. Because these different GHGs have different warming potential (i.e., the amount of heat trapped by a certain mass of a GHG), and CO₂ is the most common reference gas for climate change, GHG emissions often are quantified and reported as CO₂ equivalents (CO₂e). For example, sulfur hexafluoride, while representing a small fraction of the total GHGs emitted annually worldwide, is a very potent GHG, with 22,800 times the global warming potential of CO₂. Therefore, an emission of 1 metric ton (1,000 kilograms) of sulfur hexafluoride would be reported as an emission of 22,800 metric tons CO₂e. Large emissions sources are reported in million metric tons of CO₂e.

Emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations. Scientists have found that this phenomenon is causing climate change globally.

The California Air Resources Board (CARB) estimated that in 2008, California produced 478 million gross metric tons of CO₂e emissions. CARB found that transportation was the source of 37% of the State's GHG emissions, followed by electricity generation at 24%, and industrial sources at 19% (CARB 2009).

Federal GHG regulations adopted by the U.S. Environmental Protection Agency (USEPA) include the Mandatory Greenhouse Gas Reporting Rule (40 CFR Part 98) and the Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule (40 CFR Part 52).

There are a variety of statewide rules and regulations that have been implemented or are in development in California that mandate the quantification or reduction of GHGs. These include the following:

- Executive Order S-3-05, established by Governor Arnold Schwarzenegger in June 2006, established statewide emissions reduction targets through the year 2050.
- Executive Order S-14-08 was established by Governor Arnold Schwarzenegger in November 2008 to improve processes for licensing renewable projects by directing State agencies to create comprehensive plans to prioritize regional renewable projects based on an area's renewable resource potential and the level of protection for plant and animal habitat.

- Senate Bill 1368, enacted in 2006, required the CPUC to establish a CO₂ emissions standard for base load generation owned by or under long-term contract with publicly owned utilities.
- California Assembly Bill 32, the Global Warming Solutions Act of 2006, required CARB to establish a statewide GHG emissions cap for 2020 based on 1990 emissions levels. Assembly Bill 32 required CARB to adopt regulations by January 1, 2008, that identify and require selected sectors or categories of emitters of GHGs to report and verify their statewide GHG emissions, and CARB is authorized to enforce compliance with the program. Under Assembly Bill 32, CARB also was required to adopt, by January 1, 2008, a statewide GHG emissions limit equivalent to the statewide GHG emissions levels in 1990, which must be achieved by 2020. CARB established this limit in December 2007 at 427 million metric tons of CO₂e. This is approximately 30% below forecasted “business-as-usual” emissions of 596 million metric tons of CO₂e in 2020, and approximately 10% below average annual GHG emissions during the period of 2002 through 2004.
- Title 17, California Code of Regulations, Section 95350 et seq., is intended to achieve GHG emissions reductions by reducing sulfur hexafluoride emissions from gas-insulated switchgear.

3.6 Cultural and Historic Resources

A records search, literature review, and Class III archaeological pedestrian field survey were conducted to identify archaeological and built environment resources within the area of potential effects (APE) for each of the action alternatives to evaluate all identified resources for National Register of Historic Places (NRHP) eligibility. These efforts are reported in the Cultural Resources Class II Survey Report for the Proposed Recurrent Energy Cinco Gen-Tie Line Project, Kern County, California (AECOM 2014c), and the Survey Results for the All-Private Gen-Tie Alternative for the RE Cinco Project (AECOM 2014d), which are included as confidential Appendix E. This section summarizes the findings of these analyses.

Cultural resources can be generally divided into archaeological resources, architectural resources, traditional cultural properties, and properties with traditional and religious importance to Native American tribes.

- Archaeological resources include prehistoric and historic locations or sites where human actions have resulted in detectable changes to the area. This can include changes in the soil and the presence of physical cultural remains. Prehistoric site types expected within the project area include lithic scatters, habitation sites, and ceramic scatters. Historic archaeological resources are those that are older than 50 years and post-date European contact. These resources may include refuse scatters and dumps, remnants of farms or

ranches, camps or temporary settlements, cairns, transportation routes, and utility or water conveyance features.

- Architectural resources are elements of the environment constructed by humans that are older than 50 years. Included are standing buildings; dams; bridges; and other residential, commercial, and industrial structures.
- Traditional cultural properties are resources associated with beliefs and cultural practices of a living culture, subculture, or community. These beliefs and practices must be rooted in the group's history and be important in maintaining the cultural identity of the group. Archaeological sites, locations of events, sacred places, and resource areas (including hunting or gathering areas) may be traditional cultural properties. These properties can also include those with traditional religious importance to Native American tribes (per 36 CFR Part 800).

This project is considered a Federal undertaking subject to Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (16 United States Code [USC] 470 et seq., 36 CFR Part 800). Section 106 requires Federal agencies to consider the effects of their undertakings on historic properties and provide the Advisory Council on Historic Preservation an opportunity to comment. The BLM has initiated consultation with the State Historic Preservation Office (SHPO), Native American tribes, and other interested parties per the NHPA and implementing regulations.

Federal rules applicable to cultural resources are the following: NEPA (42 USC 4321); Section 106 of the NHPA and its implementing regulations (16 USC 470f and 36 CFR Part 800); the Archaeological Resources Protection Act, as amended (16 USC 470aa et seq.); Executive Order 11593, Protection and Enhancement of the Cultural Environment; Executive Order 13007, Indian Sacred Sites; Executive Order 13175, Consultation and Coordination with Indian Tribal Governments; and the Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001).

3.6.1 Area of Potential Effect

The APE for the project area was defined based on the direct and indirect effects that could occur as a result of implementation of Alternatives 2, 3, or 4. Typically, the APE for archaeological resources is defined by the proposed ground disturbance area(s) or areas of potential direct effects. For historical resources, including existing standing structures, the APE is often defined more broadly to include areas of potential indirect visual, auditory, or atmospheric effects.

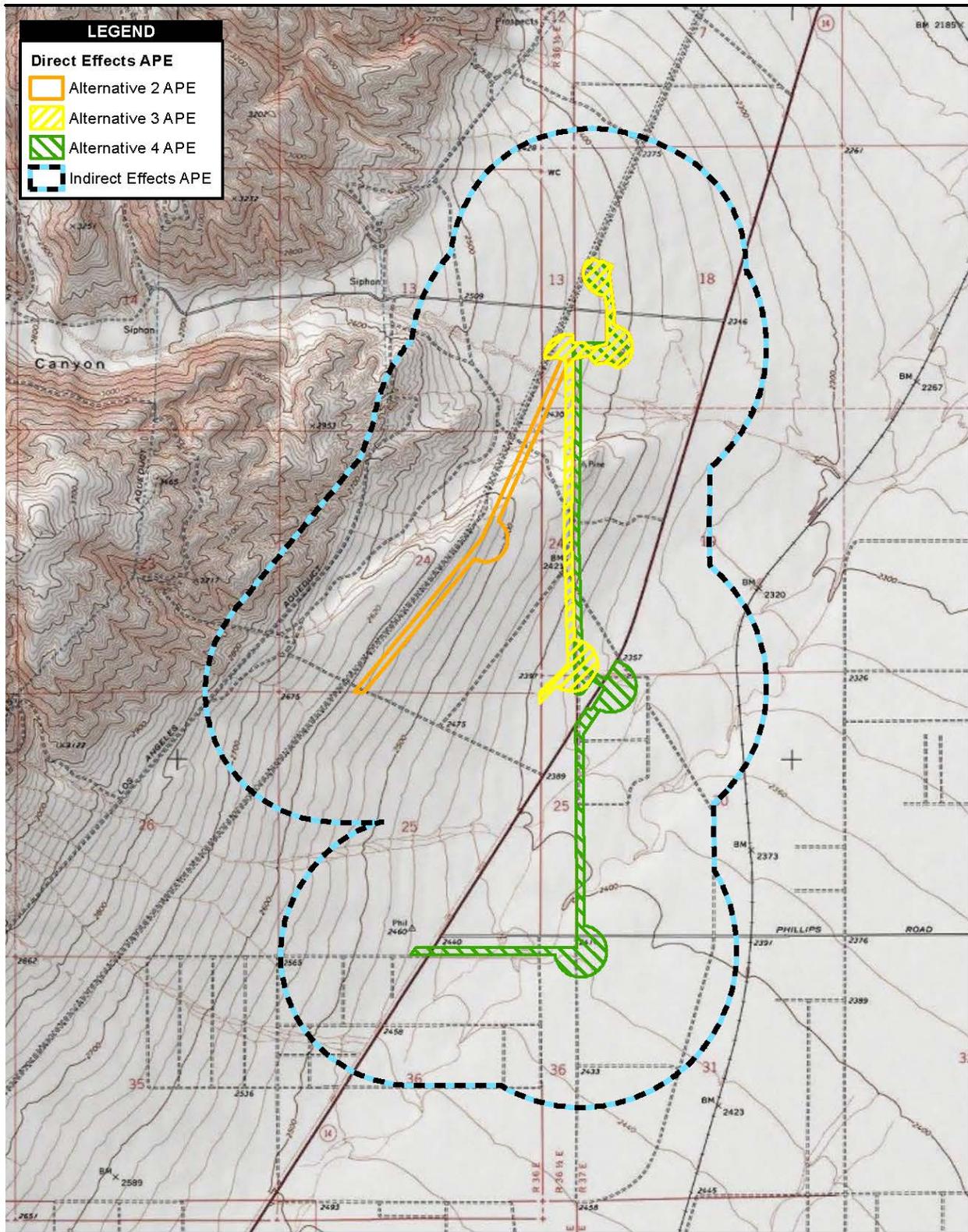
The direct effects APEs for Alternative 2 and Alternative 3 were established in consultation with the BLM and received SHPO concurrence on April 30, 2014. The private lands Alternative 4 APE is based on the proposed Alternative 4 ROW width. In all, the direct effect APEs for all of the alternatives encompass approximately 350 acres. Each is shown in Figure 3.6-1, and are described below:

- The Alternative 2 APE would be 2.5 miles long and would be located mainly within township 31 south, range 36½ east, section 24 of the Mojave NE USGS 7.5-minute quadrangle. Almost 2 miles of this alternative crosses Federal lands. The archaeological APE for Alternative 2 is a 300-foot-wide corridor (150 feet on either side of the centerline of the alternative gen-tie alignment), with additional 525-foot radial fan areas at each turn in the alignment and the area between the existing LADWP maintenance road and the western edge of the archaeological APE corridor to provide options for pole locations and spur roads.
- The Alternative 3 APE would be 2 miles long and would be located primarily in township 31 south; range 36½ east; sections 24, 25, and 13 of the Mojave NE USGS 7.5-minute quadrangle. Alternative 3 would cross approximately 1.4 miles of Federal land. The archaeological APE along these lengths is a 300-foot-wide corridor (150 feet on either side of the centerline of the alternative gen-tie alignment), with additional 525-foot radial fan areas at each turn in the alignment.
- The Alternative 4 APE would be 3.6 miles long and would be located exclusively on private land, primarily on township 31 south; range 36½ east; sections 13, 24, and 25; and township 31 south; range 37 east; sections 18, 19, 30, and 31 of the Mojave NE USGS 7.5-minute quadrangle. The archaeological APE for Alternative 4 is a 150-foot-wide corridor with additional 525-foot radial fan areas at each turn in the alignment.

The indirect effects APE consists of approximately 3,650 acres encompassing 0.5 mile in each direction from the centerlines of Alternatives 2, 3, and 4. The indirect APE is also shown in Figure 3.6-1.

3.6.2 Investigation and Survey Results

Analyses completed for the APEs included archival research at the Southern San Joaquin Valley Information Center at the University of California, Bakersfield; field surveys to determine the presence of archaeological and built environment resources located within the APE; and NRHP-eligibility evaluations of cultural resources within the APE that could be affected by the proposed project.



Source: RE Cinco 2013, USGS 7.5' Topographic Quadrangle Mojave NE and Cinco CA 1994, Copyright © 2013 National Geographic Society, i-cubed

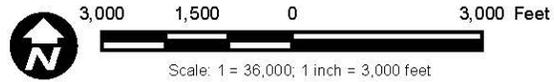


Figure 3.6-1
Cultural Resources APE

Records Search Results

The archival records search identified 15 survey-level investigations that have been previously conducted in and around the APEs. Eleven of those surveys overlap with portions of the alternatives' direct effects APEs. Approximately 11% of the Alternative 2 direct effects APE (17 of 150 acres), 20% of the Alternative 3 direct effects APE (17 of 100 acres), and 40% of the Alternative 4 direct effects APE (43 of 105 acres) have been previously surveyed. In addition, a Class I and Class II Inventory Report was prepared for the BRRTP in 2011 (Power Engineers 2011a), which is not on file at the information center. The northern-most portion of BRRTP's proposed new 230-kV transmission line and 230-kV circuit overlaps with portions of Alternative 2 and Alternative 3. However, the BRRTP study did not include a pedestrian survey (Class III) of this area, so no new information was obtained from the BRRTP report, and all previously recorded resources were captured by the original archival records search.

The archival records search identified 48 previously recorded archaeological resources that are located within a 1-mile radius of the three alternative gen-tie alignments, only one of which overlaps with any alternative's direct effects APE. One prehistoric isolate (P-15-015956) is located within the direct effects APE for Alternatives 2 and 3. The other 47 identified resources are located within the adjacent private lands solar facility site or the 1-mile records search buffer zone. These consist of 28 prehistoric resources, five multicomponent sites, and 14 historic resources.

Pedestrian Survey Results

An intensive pedestrian survey of the direct effects APEs for all action alternatives resulted in the identification of eight archaeological sites, of which four are historic and four are prehistoric. One of the sites, P-15-007706, was previously recorded as an isolate located just outside of the direct effects APE. However, field staff identified material associated with P-15-007706 within the direct effects APE and recorded the resource as a site. The remaining archaeological sites are newly identified resources.

The survey also identified 16 isolated finds, of which 14 are prehistoric and two are historic. Isolated resources are defined as two or fewer artifacts that are separated from other cultural materials by more than 30 meters. A total of 16 isolates were identified within the direct effects APE.

The majority of the archaeological resources (sites and isolates) identified in the direct effects APE are prehistoric and consist predominately of flaked stone debitage, with smaller amounts of flaked stone tools. Historic archaeological material included mostly metal cans, with smaller quantities of glass bottles and jars, broken ceramics, and sundry metal items. Historical features included debris scatters from the early to mid-20th century.

3.7 Energy Resources

The project area is not currently used for the production of energy. Fossil fuel resources such as oil, natural gas, and coal are not known to occur in the project vicinity. Wind energy generation occurs atop the hills on the far side of Barren Ridge several miles to the northwest of the project area, as well as in areas to the south near Mojave. The project area itself is generally not suitable for utility-scale production of wind energy owing to the lack of consistent and reliable wind. Solar energy is not now produced in the immediate vicinity, but construction is currently underway on the Beacon solar facility approximately 2 miles north of the project area on the east side of SR-14. The proposed RE Cinco Project, if constructed, would generate approximately 60 MW of PV solar-generated electricity that would be conveyed to the Barren Ridge Switching Station via the proposed gen-tie. Overall, the project area presents strong potential for solar power generation based on available sunlight, favorable climate, and proximity to available transmission infrastructure.

The public lands in the project area through which the alternatives would pass are part of a designated energy corridor. The corridor was established, in part, to expedite applications to construct or modify electricity transmission and distribution facilities within such corridors. Additional information concerning the corridor can be found in Section 1.6.

The project area currently contains two existing transmission lines: the Bonneville Power Administration's and LADWP's Pacific Direct Current Intertie 500-kV transmission line, and LADWP's existing 230-kV Barren Ridge–Rinaldi Transmission Line. An additional 200-foot-wide ROW has been granted by the BLM to LADWP for the planned 230-kV BRRTP, which is scheduled to begin construction in 2015.

3.8 Fire and Fuels

Trees are absent from the project area. Shrub vegetation in the project area is sparse and widely spaced, thus limiting the amount of woody fuel available to wildfires. Creosote is the dominant shrub, with the smaller white bursage as the second-most common species. As such, fuel loads are generally limited and fires in the project area are typically small in extent. Fire frequency is low. During field surveys, no direct evidence of recent fires was noted.

Favorable but infrequent seasonal rains can produce greater amounts of vegetative growth, particularly low-lying mostly nonnative annual grasses and herbaceous plants. After setting seed, these short-lived plants die. Once dried and cured, these plants can temporarily increase fire risk by adding fine fuels that provide fuel continuity to carry fire over the distances between shrubs. Fire risk can be further enhanced by high winds, which occasionally occur in the area. The time of greatest fire risk is generally in late spring and summer following a favorable winter rainy season. The spread of annual invasive plant species such as Saharan mustard, which can grow in substantial quantities and remain in place well after it has seeded and cured, can greatly enhance the ability of fire to spread (Brooks et al. 2004; Marushia et al. 2012). Saharan mustard is present

in the project area, although its current local distribution is limited. Extended periods of drought may make perennial vegetation like creosote more susceptible to fire, and thus increase fire risk.

Human activities make up the preponderance of fire ignitions in the region. Fires caused by vehicles, construction activities, and recreational activities have occurred in the area. Small fires adjacent to SR-14 are not uncommon, and are typically the result of discarded cigarettes from vehicles. Most of these fires either burn themselves out or are quickly contained, but the risk from these fires can be heightened by the presence of vegetation adjacent to roadways. Invasive species like Saharan mustard are most common near roadways, and can help to spread fires started from roadways. Increased distribution of Saharan mustard and other invasive plant species into adjacent areas, combined with prolonged drought and other fuels-related factors, could permanently increase the risk of fire in the area.

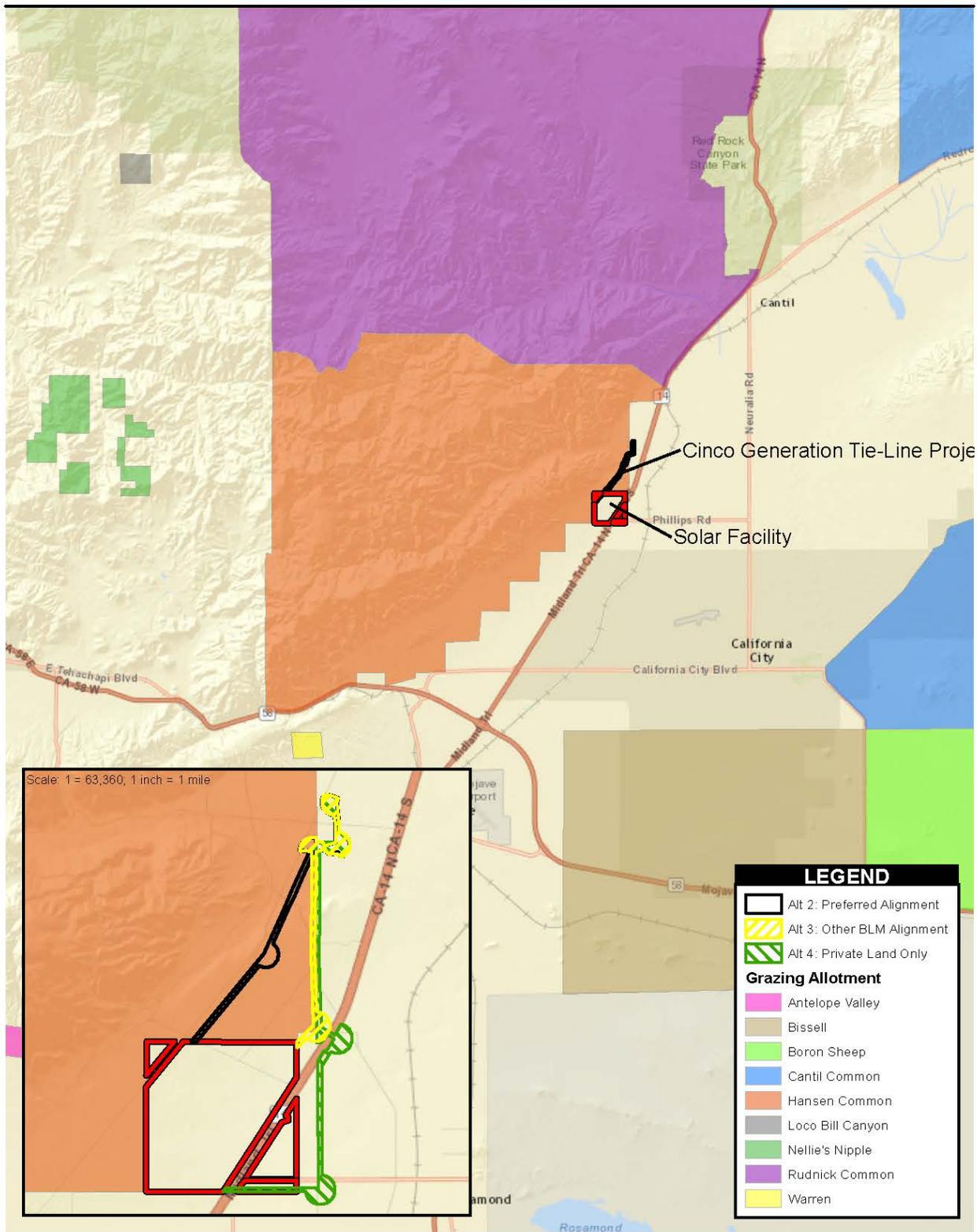
3.9 Grazing Allotments

BLM lands contained within Alternatives 2 and 3 are part of the Hansen Common Grazing Allotment. Adjoining private lands are not fenced, so it can be assumed that grazing animals could use BLM lands contained within Alternatives 2 and 3.

Figure 3.9-1 shows the location of the grazing allotment and other allotments in the region. Within the grazing allotment, 34,848 acres is under the management of the BLM, and 37,254 additional acres is located on State, private, or other lands. The project area is located along the southeastern periphery of the grazing allotment; most of the allotment is located to the west and north of the project area in the adjoining mountainous areas of Barren Ridge and the southern Sierra Nevada.

The current grazing permit for the allotment was issued in 2009 and expires in 2018. The permit provides for cattle grazing and ephemeral sheep grazing. Cattle grazing is preference-based, and occurs mostly in the upper portions of Pine Tree Canyon, well to the west of the project area, where forage availability is more consistent. For 2014, 354 animal-unit-months are authorized for the cattle-grazing portion of the allotment.

The non-preference-based ephemeral sheep grazing occurs in the southeastern portion of the allotment paralleling SR-14, which includes the project area. The availability of forage in the project area itself is sparse and infrequent, and is reliant on favorable precipitation and resultant forage production. Authorization to graze is only provided during favorable years. If authorized, up to two bands of sheep occasionally use the area for approximately 2 months per year, typically in March and April. Actual use of the area for sheep grazing is ephemeral and infrequent. Grazing has only been authorized during 2 of the last 5 years (2009 and 2011). Grazing was not authorized during the other 3 years based on the lack of suitable forage.



Source: RE Cinco 2013; AECOM 2013; Sources: Esri, DeLorme, HERE, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom

Figure 3.9-1
BLM Grazing Allotments

3.10 Hazardous and Solid Wastes

The area through which the action alternative alignments would pass is currently open desert, with no existing human disturbance beyond the existing transmission lines and several unimproved access roads, a State highway, and off-highway-vehicle (OHV) tracks. No commercial, industrial, or similar operations are currently present in the area, nor are any known to have occurred in the past. There is no evidence of hazardous or solid waste disposal along any portion of the alternative alignments. A comprehensive review of hazardous material sites databases was undertaken in 2011, and no records for any recognized environmental conditions were found for the project area.

3.11 Lands and Realty

The project area is in a rural portion of Kern County. Land use is defined by current land activities, land ownership, zoning (where applicable), and land use designations in adopted land use plans and policies. Land use is also affected by legal instruments addressing land use, such as those provided by easements, deeds, ROWs, claims, leases, licenses, and permits. BLM-administered lands are not zoned, but they may be encumbered by easements, ROWs, mining claims, and permits. BLM lands in the project area are managed under the guidance contained in the CDCA Plan (BLM 1980), as amended in the West Mojave Plan (BLM 2006). The BLM land use designation for BLM-managed lands in the project area is Multiple-Use, Class L (Limited). According to the CDCA Plan, lands classified as Class L are intended to be managed in a manner that provides for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished.

There are a number of existing and proposed ROWs on BLM lands in the vicinity of the action alternative alignments, all of which are associated with transmission lines interconnecting with the Barren Ridge Switching Station within the designated Energy Corridor 23-106. These consist of the Bonneville Power Administration's and LADWP's Pacific Direct Current Intertie 500-kV transmission line, and LADWP's existing 230-kV Barren Ridge–Rinaldi Transmission Line. This ROW currently contains the two transmission lines and a service road, and is 250 feet in width. An adjacent 200-foot-wide ROW has been granted by the BLM to LADWP for the planned 230-kV BRRTP, which is scheduled to begin construction in 2015. A fourth and fifth transmission line, one 66 feet in width authorized to Zond Systems Inc. and the other 150 feet in width authorized to LADWP, respectively, with access roads are located within the corridor near the northern terminus of the proposed gen-tie, connecting to the Barren Ridge substation and oriented in a west-to-east direction. A telephone line ROW is also present in this area, and is owned and operated by California Interstate Telephone Company, now Verizon.

Approved uses of private lands in unincorporated Kern County are outlined in the county's General Plan, and development within the county must be consistent with the General Plan. The private lands through which the action alternative alignments would pass are classified in the General Plan as "Resource Management" land (Kern County 2009), and are zoned as "A"

(Exclusive Agriculture), “AGH” (Limited Agriculture Geologic Hazard Combining), and “PLRS” (Platted Lands Residential Suburban Combining). These classifications and zoning allow for the construction of transmission facilities without a conditional use permit.

Based on the proximity of Edwards Air Force Base, Kern County Zoning Ordinance Section 19.08.160 requires DOD review of structures taller than 100 feet and communication towers taller than 80 feet within specified zones. The project area is within such a zone. The ordinance requires that DOD concur in writing that no impacts to the military mission would occur. Such concurrence must be obtained prior to the construction of structures exceeding the specified heights.

3.12 Noise and Vibration

Sound is measured on a logarithmic scale consisting of sound pressure levels known as a decibel. The method for evaluating all the frequencies of the sound is to apply an A-weighting to reflect how the human ear responds to the different sound levels at different frequencies. Community noise levels are usually closely related to the intensity of nearby human activity. Noise levels are generally considered low when ambient levels are below 45 A-weighted decibels (dBA), moderate in the 45 to 60 dBA range, and high above 60 dBA. In small towns or lightly used residential areas, background noise is more likely to be around 50 or 60 dBA. Levels around 75 dBA are more common in busy urban areas, and levels up to 85 dBA occur near major freeways and airports. Although people often accept the higher levels associated with very noisy urban residential and residential/commercial zones, they nevertheless are considered to be adverse to public health.

All of the action alternative gen-tie alignments are located in unincorporated southeastern Kern County, approximately 6.5 miles northwest of the community of California City, approximately 12 miles northeast of the community of Mojave, and approximately 0.8 mile south of the Los Angeles Aqueduct. The gen-tie would be constructed on undeveloped land and surrounded entirely by undeveloped land, with the exception of existing transmission lines. Noise sources and levels are typical of open space and rural areas. The closest sensitive receptors to the gen-tie are residences located approximately 2.2 miles to the east.

The predominant source of noise in the area is roadway traffic along SR-14, which is a moderately travelled State highway with approximately 5,600 vehicles passing along the adjacent segment per day (Caltrans 2012). Several designated and non-designated OHV routes also traverse the area, but these routes are infrequently used, and any noise generated during their use is strictly ephemeral. Overall, the existing noise environment in the project area is limited.

3.13 Paleontological Resources

A study prepared for the Alternative 2 and Alternative 3 gen-tie alignments found that both alignments would traverse sedimentary deposits of Quaternary alluvium and a quartz monzonite

unit (Applied Earthworks 2014). The study is included as Appendix F of this EA, and Figure 3.13-1 shows the locations of geologic units in relation to the alternative gen-tie alignments

Igneous rocks, such as quartz monzonite, do not contain paleontological resources. Younger Quaternary deposits, defined as fluvial and alluvial fan deposits less than 11,000 years old, have only minor sensitivity with respect to paleontological deposits (McLeod 2010). This is largely a function of their relatively recent deposition and the physical environment within which they were deposited. Older Quaternary deposits, however, have a stronger but undetermined potential for producing fossil remains. Older Quaternary deposits are defined as those deposits dating from between approximately 1.8 million and 11,000 years before present. Although no vertebrate fossil localities have been recorded within or near the project area, fossils have been recorded nearby from similar sedimentary deposits as those occurring in the project area. The nearest vertebrate fossil locality is a specimen of fossil horse recovered from Quaternary deposits near Tehachapi, approximately 20 miles west of the project area.

3.14 Public Health and Safety

The absence of known hazardous materials in the project area is discussed in Section 3.10. There are no hazardous materials or recognized environmental conditions identified on the BLM lands or private lands associated with the project.

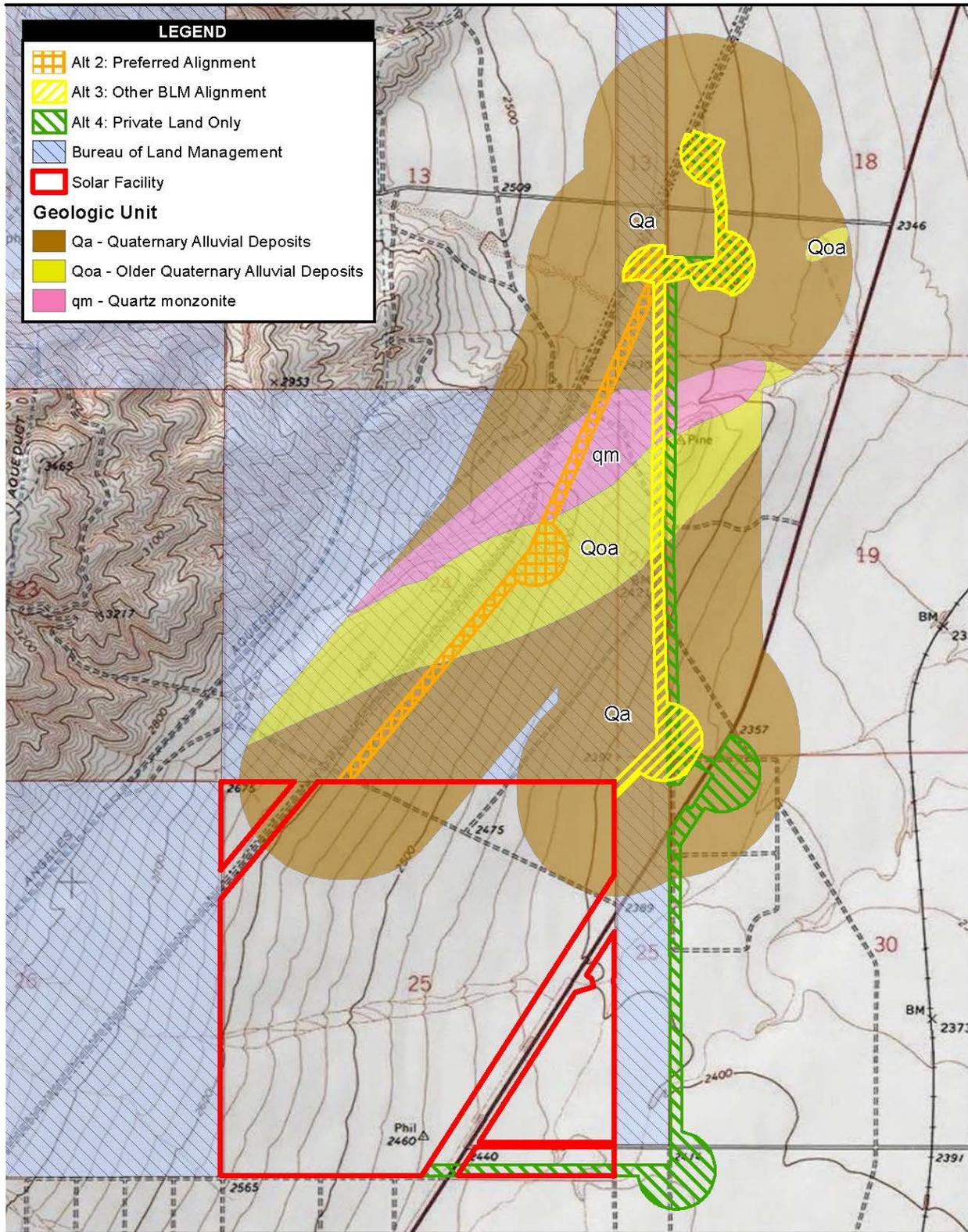
Aboveground transmission lines can pose a threat to aviation safety if they are located within an airport land use plan or flight zone. The project area is not located within the airport compatibility zones associated with any of the public airports in Kern County. The closest public airport is the California City Airport, which is located approximately 4.8 miles to the southeast of the project area.

As noted previously in Section 3.11, Kern County Zoning Ordinance Section 19.08.160 requires DOD review of structures taller than 100 feet and communication towers taller than 80 feet proposed within specified zones. The project area is within such a zone. The ordinance requires that DOD concur in writing that no impacts to the military mission would occur prior to the construction of structures exceeding the specified heights.

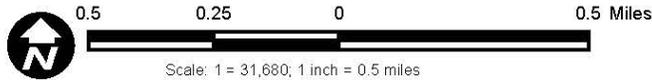
3.15 Recreation

The CDCA Plan includes a Recreation Element to address use of, and access to, recreational destinations within the California desert, including the project area. A primary consideration of the recreation program is to ensure that access routes necessary for recreation enjoyment are provided.

The project area is not a BLM-designated recreation area. The closest designated recreation area to the project area is the Jawbone OHV Open Area, which is located approximately 5 miles north of the project area. The Jawbone Open Area offers OHV riding opportunities, primitive camping, and a visitor's center.



Source: RE Cinco 2013, Copyright © 2013 National Geographic Society, i-cubed



**Figure 3.13-1
Geologic Units in the Project Vicinity**

Cinco Gen-Tie Project – Environmental Assessment

Path: P:\2011\11280215.01_Recurrent_P\06GIS\6.3_Layout\EA\Cinco\BLM\Cinco-GTEA Geologic Units Alt Alignments.mxd, 10/23/2014, irelandm

A number of BLM-designated routes are present within the project area. The location and use of these routes is described more fully in Section 3.18. None of these routes would be closed or rerouted by any of the alternatives.

3.16 Socioeconomics and Environmental Justice

The action alternative alignments would be located in a rural portion of southeastern Kern County, approximately 6.5 miles northwest of the community of California City, approximately 12 miles northeast of the community of Mojave, and approximately 0.8 mile south of the Los Angeles Aqueduct. The gen-tie would be constructed on undeveloped land and surrounded entirely by undeveloped land, with the exception of existing transmission lines. The closest residences are located approximately 2.2 miles to the east of the gen-tie corridor.

Executive Order 12898 requires all Federal agencies to analyze the effects of their decisions on human health and environmental conditions in minority and low-income communities, and to develop strategies to address environmental justice. Agencies are required to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations.

3.16.1 Population Characteristics

BLM Instruction Memorandum 2002-164, Guidance to Address Environmental Justice in Land Use Plans and Related NEPA Documents, provides policy and guidance for addressing environmental justice in BLM land use planning. Instruction Memorandum 2002-164 defines minority persons as “Black/African American, Hispanic, Asian and Pacific Islander, American Indian, Eskimo, Aleut, and other non-white persons.” Furthermore, Instruction Memorandum 2002-164 states that an area should be considered to contain a minority population when the minority population of the affected area exceeds 50% or the percentage of the minority population in the affected area is meaningfully greater than the percentage in the general population.

General demographic information for the project area was obtained from U.S. Census data from 2010. The Census measures race and ethnicity with separate questions, and people self-identify their race as white, black or African American, Asian, Native Hawaiian or other Pacific Islander, American Indian/Alaska Native, some other race, or two or more races. For ethnicity, people identify whether they are Hispanic/Latino or not. Therefore, identification of environmental justice populations requires considering both of these Census questions.

The entirety of the project area, which includes the action alternative alignments, is located within Kern County Census Tract 65. Tract 65 covers a very large area and is composed primarily of sparsely populated rural lands, but it also includes a portion of the unincorporated community of Mojave. Table 3.16-1 shows general population and race information for Tract 65, and also shows comparative information for Kern County and the State of California.

Table 3.16-1. Race and Ethnicity Data

Location	Total	White, Non-Hispanic	Hispanic	Black	American Indian	Asian	Pacific Islander	Two or More Races	Percent Minority
State of California	37,253,956	15,763,625	14,013,719	2,683,914	723,225	5,556,592	286,145	1,815,384	67.1%
		42.3%	37.6%	7.2%	1.9%	14.9%	0.7%	4.8%	
Kern County	839,631	499,766	413,033	48,921	12,676	34,846	1,252	37,856	65.3%
		59.5%	49.2%	5.8%	1.5%	4.2%	0.1%	4.5%	
Census Tract 65	5,152	4,424	3,042	109	57	115	6	164	67.7%
		85.9%	59.0%	2.1%	1.1%	2.2%	0.1%	3.2%	

Source: U.S. Census Bureau 2010

Note that the sums of racial percentages exceed 100% due to variations in individual self-identification.

Based on the Census data, 67.7% of the population of Census Tract 65 identifies itself as belonging to a racial minority. Because this is greater than the 50% threshold, the population of Census Tract 65 is considered an environmental justice population based on minority status.

3.16.2 *Income and Poverty*

BLM Instruction Memorandum 2002-164 states that low-income populations can be identified according to poverty thresholds published by the U.S. Census Bureau. In addition, the Instruction Memorandum notes that “when considering these definitions, it is important to recognize that some low-income and minority populations may comprise transitory users of the public lands and thus not associated with a particular geographic area.”

The Council on Environmental Quality (CEQ) guidance for environmental justice analysis under NEPA defines a “low-income population” as “either a group of individuals living in geographic proximity to one another, or a set of individuals (e.g., migrant workers or Native Americans) where either type of group experiences common conditions of environmental exposure or effect.” Although CEQ and BLM guidance do not specify quantitative criteria for what constitutes a low-income population, typically, the percent of persons in poverty in a project area is compared to that in a larger area such as a county or state.

Table 3.16-2 shows 2012 U.S. Census estimated income, labor, and poverty information for Tract 65, and also shows comparative information for Kern County and the State of California.

Table 3.16-2. Labor, Income, and Poverty Data					
Location	Population Over Age 16	Population In Labor Force (%)	Civilian Unemployment Rate (%)	Median Family Income (per year)	Families Below Poverty Level (%)
State of California	29,163,075	64.5	7.1	\$61,400	11.5
Kern County	614,650	59.4	7.7	\$47,727	18.5
Census Tract 65	2,404	43.5	11.9	\$32,268	25.0

Source: U.S. Census Bureau 2012

Based on the data presented above, the percentage of families in Tract 65 living below the poverty level is substantially higher than that in the State of California and in Kern County. The percentage living in poverty in Tract 65 is more than twice that of the overall State of California average, and approximately 25% higher than the Kern County average. The rate of unemployment is also considerably higher in Tract 65. Therefore, the population of Tract 65 qualifies as an environmental justice community based on income and poverty levels as compared to the State of California and Kern County.

3.17 Topography, Geology, and Soils

3.17.1 Topography

All of the action alternative gen-tie alignments would traverse a bajada slope that drops eastward from the base of Barren Ridge. The bajada is principally composed of alluvial material, with occasional outcroppings of quartz monzonite bedrock. The bajada slope is moderate, and ranges from 2% to 15%. The amount of elevation variation along the alternative alignments is less than 100 feet. All of the alternative alignments would roughly lie parallel to the mountain front, and would generally follow existing contours from the solar facility site up to the Barren Ridge Switching Station. An area of very low hills immediately south of Pine Tree Canyon Wash, approximately midway along the alignment, would be crossed by each of the gen-tie alignments. These hills rise approximately 80 feet from the surrounding landscape, and then drop back down into Pine Tree Canyon Wash. The existing LADWP transmission lines and associated access road also cross over these hills.

3.17.2 Geology and Seismology

All of the action alternative gen-tie alignments are located on areas mapped as Quaternary-aged alluvial deposits, with occasional outcroppings of quartz monzonite bedrock. As with most of California, this region is located in a seismically active area. The nearest recently active fault is the Garlock (West) Fault, which runs along the base of Barren Ridge and is located within several hundred feet of the closest alignment alternative. Other faults are also known within the region. Table 3.17-1 shows the estimated distance from the nearest expected surface expression of nearby faults.

Table 3.17-1. Fault Distance from Project Area		
Fault Name	Approximate Distance (miles)	Maximum Moment Magnitude
Garlock (West)	0.1	7.3
Garlock (East)	6.1	7.5
Lenwood, Lockhart, Old Woman Springs	17.3	7.5
White Wolf	26.6	7.3
Helendale, South Lockhart	33.5	7.3
Source: Stantec 2010		

3.17.3 Soils

Based on Natural Resource Conservation Service data (NRCS 2014), soils in the area are predominantly Cajon loamy sand and Arizo gravelly loamy sand. The subsurface soils in the vicinity are composed of interbedded layers of well-graded sand with silt and sand, with silt to a depth of approximately 4 feet below the ground surface. The near surface sands are dry and generally fine to course in grain size and contain traces of gravel. These soils are generally well-drained and are moderately susceptible to water erosion, especially in areas of high slope. Areas where quartz monzonite outcroppings are present typically display little to no soil formation.

3.18 Transportation and Public Access

The project area is currently accessible from a number of different routes. The southern portion of the project area can be accessed directly from SR-14 onto private land at Phillips Road and at an unnamed entrance onto private land approximately 0.75 mile north of the Phillips Road intersection. Left-turn lanes for northbound traffic on SR-14 are provided at each of these intersections, and stop signs are located at each intersection for traffic accessing SR-14 from the project area. SR-14 is a four-lane highway with a divided median. The roadway is operated and maintained by Caltrans, and in the project area, it occupies a ROW that is approximately 400 feet in width. Traffic along the roadway is comparatively light considering the highway's high level of improvement in the project area. Approximately 5,600 vehicles per day pass along the highway in the segment that adjoins the project area (Caltrans 2012).

The northern portion of the project area can be accessed from Pine Tree Canyon Road, which is a graded dirt road that travels from SR-14 well up into Pine Tree Canyon to the west. Upon leaving SR-14, Pine Tree Canyon Road initially passes through private lands for approximately 2,700 feet, and then passes through a brief section of BLM lands for approximately 700 feet before again entering private lands. Those portions of the route that pass through BLM lands are identified as Route MK0055 as part of the BLM's West Mojave Plan Route Designation Program (BLM 2004: Map 30A). BLM-designated routes are signed with route markers

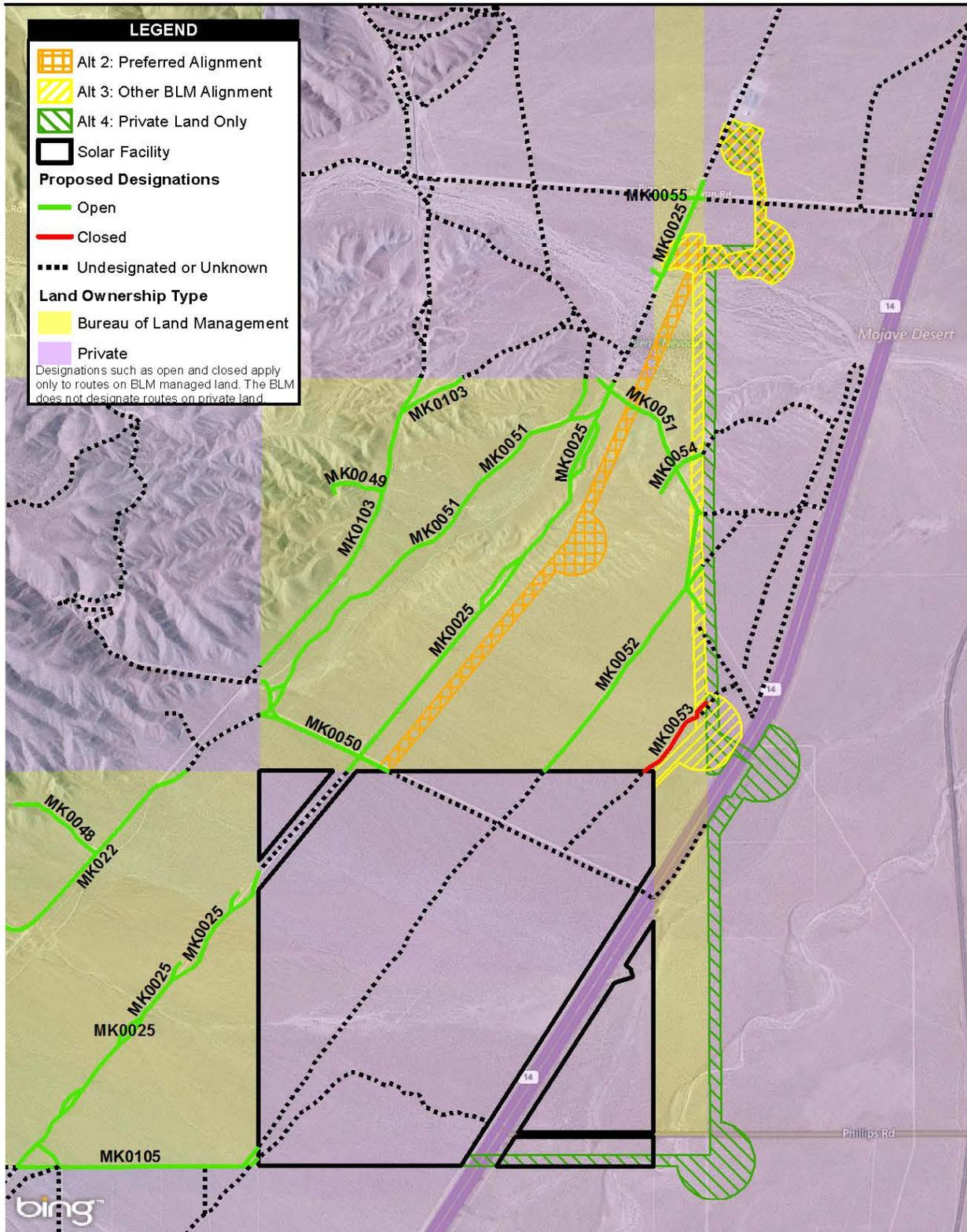
throughout the project area. Figure 3.18-1 shows the locations and numbering of BLM-designated routes in the area.

The alignment for Alternative 2 would generally parallel an existing dirt access road associated with LADWP's existing transmission lines. This roadway serves as LADWP's service road for its transmission structures. The road and its associated transmission lines pass through the northwest corner of the private lands solar facility site and then travel in a northeastern direction for approximately 2 miles to the Barren Ridge Switching Station. The road extends much farther to the north and south of the project area, and generally parallels the aforementioned LADWP transmission lines for many miles in both directions. Owing to the checkerboard BLM and private land ownership patterns in this area, the roadway passes alternately and repeatedly through both private and BLM lands. Those portions of the route that pass through BLM lands are designated by the BLM as Route MK0025. Within the project area, the route is not gated at the private and BLM property boundaries, and is used by members of the public and LADWP transmission line maintenance crews. Besides maintenance activities, the route is used for recreational purposes, and provides access to adjacent areas along the Barren Ridge mountain front and adjoining ranges to the north and south.

The alignment for Alternative 3 would exit the private lands solar facility site at its northeastern corner and would travel northward to the Barren Ridge Switching Station. The route would not traverse any existing roadways, but the alignment would cross several existing routes. Again, the checkerboard BLM and private land ownership in this area means that each of these routes passes through both private and BLM-managed lands. Portions that pass through BLM-managed lands are designated with route numbers. From south to north, these routes are MK0053, MK0052, MK0051, MK0054, MK0025, and MK0055 (Pine Tree Canyon Road). See Figure 3-18.1 for the locations of these routes.

Each of the routes is being used by the public, and none of the routes are gated where they enter and leave private lands.

The Alternative 4 alignment would exit the private lands solar facility site at its southeastern corner and would then cross over SR-14 and turn northward over Phillips Road. It would then cross over SR-14 again and continue northward across private lands to the Barren Ridge Switching Station. Since the alignment for Alternative 4 would pass exclusively through private lands, it would not traverse any BLM-designated routes on BLM lands. As with the Alternative 3 alignment, some of the routes that would be crossed are designated as BLM routes once they pass from private lands onto BLM lands. From south to north, these routes are MK0053, MK0051, MK0052, MK0054, MK0025, and MK0055 (Pine Tree Canyon Road). Private lands portions of these routes are not gated or blocked where they join BLM-designated routes, so the public is able to use the private lands portions of these routes as well, unless otherwise posted by the private property owner.



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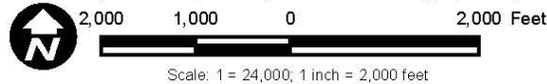


Figure 3.18-1
Existing Travel Routes

All of the unimproved routes in the project area, whether on BLM lands or otherwise, are used by the public for recreational use or for access to transmission facilities. Based on field observations, none of the private land roadways in the area have been posted against trespass, gated, or otherwise closed to public use. Travel across these routes is currently open and unimpeded, but is subject to Kern County regulations on private land portions and BLM regulations on Federal land portions. On BLM lands, non-designated routes that have not been signed as “open” are not legal for travel, nor are adjoining open desert areas.

3.19 Visual Resources

3.19.1 Existing Conditions Methodology

Visual resources were evaluated for the “project viewshed,” or the area from which the project could be visible. The methodology used to establish landscape scenery and a sensitive viewer’s inventory included manual-digitizing from detailed aerials, data download from USGS, geographic information systems (GIS) spatial analyses, and field verification. Land surface modeling was used to delineate viewsheds and identify sensitive viewer locations, including residences, recreation sites, trails, and roads. Project-specific visibility and distance zone analyses and mapping were conducted using GIS (ArcGIS).

Field investigation was conducted to discover and disclose the relationships of project elements to existing on-site landscape characteristics and locations of sensitive viewers. To better understand these existing conditions and the potential viewer response, key observation points (KOPs) were selected based on likely public viewpoints in and around the project area. Because it was not feasible to analyze all views of the project area, three KOPs were selected for their ability to represent existing conditions and authentically depict the effects of implementation.

These views established a baseline visual condition to which potential change was compared. The chosen KOP locations are identified in Appendix H, Figure 3 and Figures 5 through 8. They are also described below.

KOP 1 is located within an existing LADWP ROW along a BLM-designated OHV trail approximately 0.61 mile north of the Phillips Road/SR-14 intersection and approximately 0.79 mile west of SR-14. The KOP is roughly 0.25 mile west of Alternative 2, and 20 feet from the existing BRRTP alignment. From this elevated position, unobstructed immediate foreground and foreground-middleground views of the existing BRRTP and project area are visible. KOP 1 also affords unobstructed background views of the surrounding desert landscape, and is typical of views in this region of the desert.

KOP 2 is located along the northbound lanes of SR-14, approximately 0.76 mile north of Phillips Road. The view from this location is characterized by immediate foreground and foreground-middleground views of existing modifications, including SR-14, the BRRTP, and cleared ROWs, as well as existing undeveloped desert landscape. Viewers have unobstructed

background views of the mountain range to the west and the scrub-covered alluvial landform below the mountain range. The view represented by KOP 2 is typical of views in this area of the desert region, and possesses few unique or memorable visual elements.

KOP 2A is located along the northbound lanes of SR-14, approximately 0.76 mile north of Phillips Road. Views facing north along this corridor are long and unobstructed, providing immediate foreground and foreground-middleground views of existing modifications, including SR-14, the BRRTP, and cleared ROWs, and natural landscape features (tall mountain peaks to the west and more uniform scrub-covered alluvial landform moving east). Background views of the surrounding mountain range provide viewers a sense of topographical enclosure. The view represented by KOP 2A is typical of the experience traveling along SR-14: visually repetitious and possessing few unique or memorable visual elements.

KOP 3 is located on Pine Tree Canyon Road, approximately 0.61 mile south of the existing LADWP Barren Ridge Switching Station and BRRTP. The KOP is roughly the same distance from the northern terminus of the project area, directly aligned with the proposed crossings of Pine Tree Canyon Road and Pine Tree Wash. The view represented by KOP 3 is typical of the visual experience in the region, and possesses few unique or memorable visual elements beyond those contributed by the BRRTP and Barren Ridge Switching Station.

3.19.2 Existing Visual Setting

The visual setting is framed by the silhouette of pyramidal ridgelines appearing distinctly against the sky and rolling topography of the adjacent scrub-covered transitional slopes. The visual texture of the project area is moderately coarse, with varying vegetation densities, including smooth patches (formed by breaks in the vegetation and exposed soils). Colors in this landscape tend to be muted, with tans, grays, and greens dominating the existing palette.

Although generally covered by high-desert vegetation, the undulating topography throughout the project area and valley at-large is occasionally interrupted by a denuded wash or existing access road, which provides texture and naturally occurring visual contrast in the landscape. Seasonal warmth and color contrasts provided by reds and oranges influence this visual experience at varying times of year, but, most frequently, large expanses of undeveloped, vegetated open space allow those areas remaining unvegetated to stand in strong contrast against the surroundings.

Beyond the scenic landscape, several modifications encroach on the project area, most notably SR-14, the existing Barren Ridge transmission corridor, and the LADWP Barren Ridge Switching Station. Both recent and historically cleared ROWs add to the visual evidence of human-made interventions on the land, and all provide moderate to strong sources of existing visual contrast in the landscape.

3.19.3 BLM Visual Resource Inventory

Landscape scenery for the project area portrays the aesthetic value of landscapes on BLM, private, and State lands. Scenic quality is defined by the BLM as the visual appeal of a tract of land (BLM 1986a). BLM lands are rated Class A, Class B, or Class C, for highest to lowest scenic quality. View distance, vegetation, topographic slopes, and characteristic landscape (particularly, the presence or absence of existing modifications), play important roles in the assessment of change caused by a project on landscape scenery.

To preserve continuity, approved Interim BLM Visual Resource Management (VRM) Classifications from the BRRTP Visual Resources Technical Report (Power Engineers 2011b) were adopted by this document after field verification (see also Section 4.0 of Appendix H). The surrounding scenic quality was classified as BLM Class C scenic quality, or a “common area where characteristic features have little variation in form, line color, or texture in relation to the surrounding region” (BLM 1986a); this would apply to the entire project area.

Viewer Sensitivity Levels

Sensitive viewer analysis and mapping for the project area encompassed public and private viewer’s concern for landscape scenery. Sensitivity levels are defined by the BLM as the measure of public concern for scenic quality. Public lands are assigned high, medium, or low sensitivity levels (BLM 1986a). As detailed in Appendix H, viewer sensitivity for vehicular viewers along SR-14 would be high, and viewer sensitivity for recreational viewers would be moderate due to level of user concern, duration of views, and overall volumes of viewers.

Distance Zones

Distance zones are defined by the BLM as relative visibility from travel routes or observation points, and were determined by evaluating the viewsheds of nearby travel routes and vistas in the project vicinity:

- SR-14
- Pine Tree Canyon Road
- BLM Off-Highway Recreational Trails/LADWP ROW

Given the nature of the project area and concentration of highly sensitive viewers along travel routes, analysis of effects to visual resources was focused primarily on immediate foreground (0 to 0.5 mile) and foreground-middleground (0.5 to 2.5 miles) distance zones.

Visual Resource Inventory Classes

Visual Resource Inventory classes represent the relative value of the visual resources and provide the basis for considering visual values in the resource management planning process. Visual Resource Inventory Classes II, III, and IV are determined based on a combination of

scenic quality, sensitivity level, and distance-zone overlays. Based on these factors, the project area was determined, on an interim basis, to be consistent with that of a BLM Class III landscape. As such, the anticipated BLM VRM objective of this class would be “to partially retain the existing character of the landscape. Changes to the landscape character may begin to attract attention, but should not dominate the visual setting” (BLM 1986a).

3.20 Water Resources

3.20.1 Surface Water Resources

The project area is located within the Antelope Valley Hydrologic Unit (HU) in the southwestern corner of the South Lahontan Hydrologic Region. The Antelope Valley HU covers approximately 1.5 million acres (2,400 square miles) in the southwestern part of the Mojave Desert. The Antelope Valley HU is mostly located in Los Angeles County and Kern County, with a small part in San Bernardino County. Bounded by the San Gabriel Mountains to the south and southwest, the Tehachapi Mountains to the northwest, and a series of hills and buttes that generally follow the San Bernardino County line to the east, the Antelope Valley HU forms a well-defined triangular point at its western edge.

The Antelope Valley HU is geographically a closed and internally drained basin with no outlets for surface runoff. Numerous streams originating in the mountains and foothills either infiltrate into the groundwater basin, evaporate, or flow across the valley floor to eventually pond in Koehn (dry) Lake. The valley lacks defined natural and improved channels outside of the foothills, and is subject to unpredictable sheet flow patterns that may exhibit braiding during high flow events. Due to the relatively lower permeability of the shallow soils and high evaporation rates, most of the water that flows to and collects on dry lakes eventually evaporates.

The project area is located on a broad bajada protruding east from the base of a ridge known as “Barren Ridge.” The bajada is composed of alluvial sediments with an outcropping of quartz monzonite bedrock in the project area. The area where the action alternative alignments are located is west of SR-14. In this portion of the bajada, slope decreases and channelized flows give way to radiating flow patterns, sheet flows, and active sediment deposition (AECOM 2011a), except in the vicinity of the quartz monzonite. Primary measurable alluvial fan characteristics evident on and around the project area include overall deposition patterns, debris flows, radiating channel patterns changing to sheet flow areas, and discontinuous and/or abandoned channels due to active processes of stream capture and erosion.

Infrequent surface flows that reach SR-14 are captured by a shallow channel that parallels SR-14 along its western side. The channel conveys the flows in a southerly direction to a series of reinforced concrete box culverts that pass under SR-14.

3.20.2 Groundwater Resources

The project area is located within the Fremont Valley Groundwater Basin, which underlies Fremont Valley in eastern Kern County and northwestern San Bernardino County. Groundwater in the Fremont Basin is understood to flow toward the terminal Koehn Lake with no known outflow paths. The basin is bounded on the northwest by the Garlock Fault zone against impermeable crystalline rocks of the El Paso Mountains and the Sierra Nevada. The basin is bounded on the east by crystalline rocks of the Summit Range, Red Mountain, Lava Mountains, Rand Mountains, Castle Butte, Bissel Hills, and Rosamond Hills. The basin is bounded on the southwest by the Antelope Valley Groundwater Basin along a groundwater divide approximated by a line connecting the mouth of Oak Creek through Middle Butte to exposed basement rock near Gem Hill (DWR 2004).

3.20.3 Jurisdictional Waters, Wetlands, and Riparian Zones

All of the action alternative gen-tie alignments would cross Pine Tree Canyon Wash. The wash eventually dissipates into the landscape prior to reaching Koehn Lake (an isolated playa lake), and does not connect with other surface aquatic features. Therefore, the desert aquatic features are considered “geographically isolated” aquatic features and are, thus, considered non-jurisdictional waters of the U.S. by the U.S. Army Corps of Engineers (USACE). A Jurisdictional Determination confirming this non-jurisdictional status was provided by USACE (see Appendix G). The USACE determined that Pine Tree Canyon Wash and other aquatic features that create a confluence with it present “geographic isolation” (i.e., isolated, non-jurisdictional waters of the U.S.). However, these desert aquatic features are still considered to be jurisdictional waters of the State under the regulatory administration of CDFW and the Lahontan Regional Water Quality Control Board.

3.20.4 Floodplains

All of the action alternative gen-tie alignments would cross Pine Tree Canyon Wash, which is a designated Flood Zone “A” according to the most recent Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (Map No. 06029C2925E). This designation indicates that this portion of the project area has a 1% annual chance of annual flooding. The remainder of the project area is within a moderate flood hazard area, labeled Zone X, also shown on the Flood Insurance Rate Map. Areas designated as Zone X lie between the limits of the base flood and the 0.2% annual-chance (or 500-year) flood.

3.20.5 Water Quality and Quantity

Natural recharge of the groundwater basin within the project area includes percolation of ephemeral streams that flow from the Sierra Nevada. The general groundwater flow direction is toward Koehn Lake at the center of the valley. According to the California Department of Water Resources (DWR), there is no appreciable quantity of groundwater flowing out of the basin

(DWR 2004). The total storage capacity of the basin has been calculated to be approximately 4,800,000 acre-feet.

Groundwater is sodium bicarbonate in character in the southeastern part of the basin, and sodium bicarbonate or calcium-sodium sulfate character in the southwest part of the basin. Groundwater is sodium sulfate-bicarbonate to sodium chloride character in the northern part of the basin. Groundwater in the central portion of the basin contains variable mixtures of sodium, calcium, chloride, sulfate, and bicarbonate (DWR 2004).

4. ENVIRONMENTAL CONSEQUENCES

Implementation of any of the alternatives described in Chapter 2 may result in direct, indirect, or residual effects on the physical, biological, and/or social components of the human environment. This chapter analyzes the anticipated environmental consequences (effects) that may occur as a result of implementing one of the alternatives. Implementation includes construction, operation, maintenance, and decommissioning of the alternatives. Plans for decommissioning would be prepared and submitted for approval to the BLM at the end of the project's operational life, which is anticipated to be approximately 30 years.

Effects may be direct, indirect, residual, or cumulative. Direct effects are those that are caused by the action and occur at the same time and place as the action. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable (40 CFR 1508.8). Direct and indirect effects are weighted the same, and need not be distinguished where it is difficult to do so (BLM 2008). Residual effects are any adverse effects remaining after the implementation of mitigation (BLM 2008). Cumulative effects are those that result from the impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or other person undertakes such actions (40 CFR 1508.7).

This chapter evaluates the environmental effects that would result from implementation of the No Action Alternative (Alternative 1) and the three action alternatives (Alternatives 2, 3, and 4). As noted in Chapter 3, for some issues, the affected environment for each of the action alternative gen-tie alignments is generally identical. For these issues, the action alternatives are analyzed collectively. For other issues, where substantive differences in impacts between the action alternatives might be present, each alternative is analyzed separately.

4.1 Air Resources

4.1.1 *Alternative 1 (No Action Alternative)*

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. As a result, none of the air emissions from the construction and operation of the proposed gen-tie on Federal lands managed by the BLM would occur. However, the gen-tie for the solar facility would likely be built on private land, so similar or greater air impacts would occur within the same air basin.

Because of their location within a designated utility corridor, the Federal lands managed by the BLM on which the alternative gen-tie lines are proposed would become available to other uses that are consistent with BLM’s land use plan, including gen-tie lines for other solar projects.

4.1.2 Alternatives 2, 3, and 4

Under Clean Air Act regulations in Title 40 of the CFR, Part 93, and the provisions of CFR, Title 40, Chapter I, Subchapter C, Part 51, Subpart W, Federal agencies are required to demonstrate that Federal actions conform to the applicable State Implementation Plan. Provisions of CFR, Title 40, Chapter I, Subchapter C, Parts 6 and 51 in effect October 13, 1994, were adopted by the EKAPCD.

The Federal regulations for air quality general conformity apply to Federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The emissions thresholds that trigger requirements of the conformity rule are called *de minimis* levels. Table 4.1-1 identifies the *de minimis* emissions thresholds for nonattainment areas.

Table 4.1-1. De Minimis Levels (tons per year)						
Carbon Monoxide (CO)	Nitrogen Oxides (NO_x)	Volatile Organic Compounds (VOC)	Nitrogen Dioxide (NO₂)	Particulate Matter <10 microns (PM₁₀)	Particulate Matter <2.5 microns (PM_{2.5})	Sulfur Dioxide (SO₂)
100	100	100	100	100	100	100
Source: 40 Code of Federal Regulations 93.153.(b)(1)						

Direct and Indirect Impacts

The alternative gen-tie alignments would be of different lengths (2.0 miles for Alternative 2, 1.9 miles for Alternative 3, and 3.6 miles for Alternative 4). The Supplemental Air Quality Analyses of the construction and operation of the 1.9-mile Alternative 3 gen-tie line for the RE Cinco Solar Project (Rincon Consultants 2014) forms the basis of the air quality analysis herein. As described in the Supplemental Air Quality Analyses, the construction and operational emissions were estimated from several emissions models and associated spreadsheet calculations, depending on the source type and data availability. The CARB on-road vehicle emissions factor model (EMFAC2011) and CARB off-road vehicle emissions factor model (OFFROAD2011) were used, along with emissions factors obtained from the USEPA (AP42 Compilation of Air Pollutant Emissions Factors). Short-term and annual project emissions were estimated using appropriate emissions factors and the associated schedules. Since Alternatives 2 and 4 are of different lengths than the Alternative 3 gen-tie that was assessed originally, additional emissions analysis was conducted for each of these alternatives. The results for each alternative are presented in Table 4.1-2.

Construction of each of the alternative gen-ties would occur over an approximately 9-month period. The construction activities would include access road construction, site preparation at each structure location, foundation construction at each location, structure assembly and erection, conductor stringing and tensioning, and cleanup/restoration. Construction activity would generally occur over a standard 5-day work week, with activity limited to daytime hours. Construction would progress in a linear fashion along the transmission corridor, so only a few acres would be actively disturbed at any one time during construction. As a result, few pieces of construction equipment would be operating at the same time and in the same location.

Table 4.1-2 shows the estimated emissions generated during gen-tie line construction for each of the action alternatives, and compares them to the *de minimis* emissions thresholds.

Table 4.1-2. Construction Emissions – Gen-Tie Action Alternatives						
Emissions	Emissions (tons per year)					
	Carbon Monoxide (CO)	Nitrogen Oxides (NOx)	Volatile Organic Compounds (VOC)	Particulate Matter <10 microns (PM₁₀)	Particulate Matter <2.5 microns (PM_{2.5})	Sulfur Dioxide (SO₂)
Alternative 2 (Options A, B, and C)						
Unmitigated	0.3	0.4	<0.06	2.2	0.7	<0.06
De minimis level	100	100	100	100	100	100
Exceeds threshold?	No	No	No	No	No	No
Alternative 3						
Unmitigated	0.3	0.4	<0.05	2.1	0.7	<0.05
De minimis level	100	100	100	100	100	100
Exceeds threshold?	No	No	No	No	No	No
Alternative 4						
Unmitigated	0.6	0.7	0.09	3.7	1.3	0.09
De minimis level	100	100	100	100	100	100
Exceeds threshold?	No	No	No	No	No	No

Based on the emissions shown in the table above, construction emissions for all three gen-tie action alternatives would be far below established *de minimis* levels.

Operation and maintenance of the proposed gen-tie would result in emissions that are even lower than those produced during project construction, since there would be no stationary emissions sources, and operations and maintenance of the proposed gen-tie would primarily involve periodic maintenance and worker trips only. The emissions generated would be comparable to a casual traveler driving along the access road, and would be negligible. Although emissions would occur, they would be well below the *de minimis* levels, given that the gen-tie would only require semi-annual inspection. Maintenance would occur only on an as-needed basis.

4.2 Biological Resources – Vegetation

4.2.1 *Alternative 1 (No Action Alternative)*

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. As a result, impacts to vegetation resources (including vegetation communities and special-status plant species) present or potentially present on Federal lands managed by the BLM would not occur under this alternative. However, the gen-tie for the solar facility would likely be built on nearby private land and would impact similar vegetation resources as those present on BLM-managed land.

The Federal lands on which the gen-tie lines are proposed are located within a designated utility corridor, and would become available to other uses that are consistent with BLM's land use plan, including gen-tie lines for other solar projects.

4.2.2 *Alternative 2*

Direct and Indirect Impacts

Vegetation Communities

Impacts to vegetation communities from proposed herbicide use along the Alternative 2 alignment is presented in Section 4.9.3. Other impacts to vegetation communities are addressed below.

Construction of Alternative 2 would require permanent and temporary vegetation removal and grading for installation of gen-tie line pole structures and the service road. Total permanent impacts to vegetation communities would be identical under all three options of Alternative 2 (i.e., approximately 2.51 acres) (see Table 4.2-1). Total temporary impacts to vegetation communities would be approximately 19.78 acres under Option A and 11.99 acres under Options B and C (Table 4.2-1). Impacts to each vegetation community type mapped in the project area are not known at this time because exact locations of project features within the ROW of Alternative 2 have not been finalized. However, it is anticipated that the majority of temporary and permanent impacts would occur to creosote bush–white bursage scrub, given that this is the most prevalent community in the relatively homogeneous project area. Impacts to desert wash habitats (i.e., scalebroom scrub, creosote/wash association, unvegetated ephemeral dry wash, and unvegetated swales) would be avoided to the maximum extent feasible, particularly in Pine Tree

Canyon Wash, which would be avoided entirely. The majority of impacts would be temporary (i.e., areas would be disturbed during construction, but would be allowed to return to natural conditions following construction).

Table 4.2-1. Permanent and Temporary Direct Impacts to Vegetation Communities							
Alternative 2 – Option A		Alternative 2 – Options B and C		Alternative 3		Alternative 4	
Permanent Impacts (acres)¹	Temporary Impacts (acres)²	Permanent Impacts (acres)¹	Temporary Impacts (acres)²	Permanent Impacts (acres)¹	Temporary Impacts (acres)²	Permanent Impacts (acres)¹	Temporary Impacts (acres)²
2.51	19.78	3.23	11.99	3.2	73.1	7.2	126.0
<p>1. Permanent impacts are defined as those areas that would be permanently impacted over the life of the project, and include structure and service road footprints.</p> <p>2. Temporary impacts are defined as those areas that would be disturbed during construction, but that would be allowed to return to natural conditions following construction. These include work areas around structures and conductor pull sites.</p>							

Activities associated with construction, operation, maintenance, and decommissioning of Alternative 2 have the potential to introduce nonnative plant species and create airborne dust, sedimentation, and erosion, thereby degrading vegetation communities in the project area. Seeds of nonnative plant species may be introduced to the project area from outside sources on vehicles, people, and equipment. Ground disturbance associated with project activities could promote the establishment and spread of opportunistic nonnative plants introduced to the project area. Additionally, wildfires caused by construction and operation of gen-tie lines are rare but may occur, and nonnative plant species often become established in burned areas. The potential spread of nonnative species into the surrounding vegetation communities would be considered a permanent indirect impact.

Airborne dust may result from grading, vehicle travel on dirt access roads, and other ground-disturbing activities. Airborne dust can affect plants by reducing the rates of metabolic processes such as photosynthesis and respiration. Grading and vegetation clearing associated with construction of Alternative 2 may also result in increased erosion and sedimentation in the project area. Impacts from dust, sedimentation, and erosion would be considered a temporary indirect impact.

Potential direct and indirect impacts to vegetation communities resulting from Alternative 2 would be avoided and minimized through implementation of the general measures identified in Table 4.2-2. Mitigation for permanent impacts to vegetation communities would occur through mitigation requirements for impacts to regulated wildlife resources (e.g., desert tortoise and Mohave ground squirrel).

Table 4.2-2. General Avoidance and Minimization Measures for Biological Resources

Measure Acronym	Measure Description	Timing
<i>General Measures (GM)</i>		
GM-1	The construction contractor(s)/crew(s) will be educated about the biological constraints of the proposed project by an Authorized Biologist (AB) or Biological Monitors (BMs) under the direction of an AB. All personnel working in the project area will attend Worker Environmental Awareness Program training, (WEAP), that includes a portion developed and presented by a biologist, prior to the commencement of construction. Logs of personnel who have taken the training will be kept on-site at the construction office.	Pre-construction
GM-2	The anticipated impact zones within the gen-tie line right-of-way (ROW), including staging areas, equipment access, and disposal or temporary placement of soils, will be delineated with stakes and flagging by a BM prior to construction. Construction-related activities outside of the impact zone will be prohibited.	Pre-construction, construction, decommissioning
GM-3	New roads planned for construction will not extend beyond the planned impact area that will be flagged prior to construction. All vehicles passing or turning around will 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 will be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.	Pre-construction, construction, decommissioning
GM-4	Spoils (i.e., excavated material such as topsoil and rock) will be stockpiled in disturbed areas presently lacking native vegetation. Stockpile areas will be marked to define the limits of where stockpiling can occur.	Pre-construction, construction, operations and maintenance (O&M), decommissioning
GM-5	Erosion and sediment control best management practices (BMPs) will be employed to minimize impacts during construction, O&M, and decommissioning.	Construction, O&M, decommissioning
GM-6	Fueling of equipment during all phases of the proposed project will take place within the solar facility site on private land and not on any lands managed by the BLM. Equipment will be checked for leaks prior to operation and repaired as necessary. Spill kits will be available at the solar facility site to respond to spills in accordance with the Storm Water Pollution Prevention Plan's BMPs.	Pre-construction, construction, O&M, decommissioning
GM-7	Construction activities and ground-disturbing O&M activities within the gen-tie line ROW will be monitored by one or more ABs. A designated lead AB will have the ultimate responsibility for these avoidance and minimization measures.	Pre-construction, construction, O&M (only as specified), decommissioning
GM-8	The Applicant will control the introduction and/or spread of exotic, nonnative, weed, and/or invasive plant species by implementing weed control activities. The introduction and/or spread of exotic, nonnative, weed, and/or invasive plant species will be avoided and controlled wherever possible, and may be achieved through physical or chemical removal and prevention, limiting the size of any vegetation and/or ground disturbance to the absolute minimum, and limiting ingress and egress to defined routes. Preventing exotic plants from entering the gen-tie line ROW via vehicular sources will include measures such as cleaning vehicles coming into and going from the gen-tie line ROW. All equipment will be cleaned and inspected prior to transport to the gen-tie line ROW.	Construction, O&M, decommissioning

Special- Status Plant Species

Impacts to special- status plant species from proposed herbicide use along the alignment is presented later in this document in Section 4.9.3. Other impacts to special- status plant species are addressed below.

No special- status plant species were documented within the project area or immediate vicinity (within approximately 100 feet of the project area) during focused rare plant surveys and vegetation mapping surveys. Therefore, direct and indirect impacts to special- status plant species are not anticipated during implementation of the gen-tie line alignment alternatives analyzed herein.

Residual Impacts after Mitigation

Residual impacts to vegetation communities after mitigation would be similar to those described above. The potential for these impacts to occur would be avoided and/or minimized through implementation of the general measures outlined in Table 4.2-2. In accordance with incidental take permit conditions under the Federal Endangered Species Act and/or California Endangered Species Act, compensatory mitigation would occur for impacts to vegetation communities that provide suitable habitat for federally- and State-listed species (i.e., desert tortoise and Mohave ground squirrel). Mitigation is not required for special- status plant species, as impacts to such species are not anticipated to result from implementation of Alternative 2.

4.2.3 *Alternative 3*

Direct and Indirect Impacts

Vegetation Communities

Impacts to vegetation communities from proposed herbicide use along the Alternative 3 alignment is presented later in this document in Section 4.9.3. Other impacts to vegetation communities are addressed below.

Construction of Alternative 3 would require permanent and temporary vegetation removal and grading for installation of gen-tie line pole structures and the service road. Permanent and temporary direct impacts to vegetation communities under Alternative 3 would be greater than those expected under Alternative 2. Alternative 3 would result in approximately 3.2 acres of permanent direct impacts and approximately 73.1 acres of temporary direct impacts to vegetation communities (see Table 4.2-1). Impacts to each vegetation community type mapped in the project area are not known at this time because exact locations of project features within the ROW of Alternative 3 have not been finalized. However, it is anticipated that the majority of temporary and permanent impacts would occur to Mojave creosote bush scrub, given that this is the most prevalent community in the relatively homogeneous project area. Impacts to desert wash habitats (i.e., unvegetated ephemeral dry wash, unvegetated swales, southern alluvial fan scrub, and creosote wash scrub) would be avoided to the maximum extent feasible, particularly

in Pine Tree Canyon Wash, which would be avoided entirely. The majority of impacts would be temporary in nature (i.e., areas would be disturbed during construction, but would be allowed to return to natural conditions following construction).

Activities associated with construction, operation, and decommissioning of Alternative 3 have the potential to introduce nonnative plant species and to create airborne dust, sedimentation, and erosion, thereby degrading vegetation communities in the project area. Seeds of nonnative plant species may be introduced to the project area from outside sources on vehicles, people, and equipment. Ground disturbance associated with project activities could promote the establishment and spread of opportunistic nonnative plants introduced to the project area. Additionally, wildfires caused by construction and operation of gen-tie lines are rare but may occur, and nonnative plant species often become established in burned areas. The potential spread of nonnative species into the surrounding vegetation communities would be considered a permanent indirect impact.

Airborne dust may result from grading, vehicle travel on dirt access roads, and other ground-disturbing activities. Airborne dust can affect plants by reducing the rates of metabolic processes such as photosynthesis and respiration. Grading and vegetation clearing associated with construction of Alternative 3 may also result in increased erosion and sedimentation in the project area. Impacts from dust, sedimentation, and erosion would be considered a temporary indirect impact.

Potential direct and indirect impacts to vegetation communities resulting from Alternative 3 would be avoided and minimized through implementation of the general measures identified in Table 4.2-2. Mitigation for permanent impacts to vegetation communities would occur through mitigation requirements for impacts to regulated wildlife resources (e.g., desert tortoise and Mohave ground squirrel).

Special- Status Plant Species

Impacts to special- status plant species from proposed herbicide use along the alignment is presented later in this document in Section 4.9.3. Other impacts to special- status plant species are addressed below.

No special- status plant species were documented within the project area or immediate vicinity (within approximately 100 feet of the project area) during focused rare plant surveys and vegetation mapping surveys. Therefore, direct and indirect impacts to special- status plant species are not anticipated during implementation of the gen-tie line alignment alternatives analyzed herein.

Residual Impacts after Mitigation

Residual impacts to vegetation communities after mitigation would be similar to those described above. The potential for these impacts to occur would be avoided and/or minimized through implementation of the general measures outlined in Table 4.2-2. In accordance with incidental take permit conditions under the ESA and/or CESA, compensatory mitigation would occur for impacts to vegetation communities that provide suitable habitat for federally- and State-listed species (i.e., desert tortoise and Mohave ground squirrel). Mitigation is not required for special-status plant species, as impacts to such species are not anticipated to result from implementation of Alternative 3.

4.2.4 Alternative 4

Direct and Indirect Impacts

Vegetation Communities

Impacts to vegetation communities from proposed herbicide use along the alignment is presented later in this document in Section 4.9.3. Other impacts to vegetation communities are addressed below.

Construction of Alternative 4 would require permanent and temporary vegetation removal and grading for installation of gen-tie line pole structures and the service road. Permanent and temporary direct impacts to vegetation communities would be greatest under Alternative 4 relative to the other action alternatives analyzed herein. Alternative 4 would result in approximately 7.2 acres of permanent direct impacts and approximately 126 acres of temporary direct impacts to vegetation communities (see Table 4.2-1). Impacts to each vegetation community type mapped in the project area are not known at this time because exact locations of project features within the ROW of Alternative 4 have not been finalized. However, it is anticipated that the majority of temporary and permanent impacts would occur to Mojave creosote bush scrub, given that this is the most prevalent community in the relatively homogeneous project area. Impacts to desert wash habitats (i.e., unvegetated ephemeral dry wash, unvegetated swales, southern alluvial fan scrub, and creosote wash scrub) would be avoided to the maximum extent feasible, particularly in Pine Tree Canyon Wash, which would be avoided entirely. The majority of impacts would be temporary (i.e., areas would be disturbed during construction, but would be allowed to return to natural conditions following construction).

Activities associated with construction, operation, and decommissioning of Alternative 4 have the potential to introduce nonnative plant species and create airborne dust, sedimentation, and erosion, thereby degrading vegetation communities in the project area. Seeds of nonnative plant species may be introduced to the project area from outside sources on vehicles, people, and equipment. Ground disturbance associated with project activities could promote the establishment and spread of opportunistic nonnative plants introduced to the project area. Additionally, wildfires caused by construction and operation of gen-tie lines are rare but may

occur, and nonnative plant species often become established in burned areas. The potential spread of nonnative species into the surrounding vegetation communities would be considered a permanent indirect impact.

Airborne dust may result from grading, vehicle travel on dirt access roads, and other ground-disturbing activities. Airborne dust can affect plants by reducing the rates of metabolic processes such as photosynthesis and respiration. Grading and vegetation clearing associated with construction of Alternative 4 may also result in increased erosion and sedimentation in the project area. Impacts from dust, sedimentation, and erosion would be considered a temporary indirect impact.

Potential direct and indirect impacts to vegetation communities resulting from Alternative 4 would be avoided and minimized through implementation of the general measures identified in Table 4.2-2. Mitigation for permanent impacts to vegetation communities would occur through mitigation requirements for impacts to regulated wildlife resources (i.e., desert tortoise and Mohave ground squirrel).

Special-Status Plant Species

Impacts to special-status plant species from proposed herbicide use along the alignment is presented in Section 4.9.3. Other impacts to special-status plant species are addressed below.

No special-status plant species were documented within the project area or immediate vicinity (within approximately 100 feet of the project area) during focused rare plant surveys and vegetation mapping surveys. Therefore, direct and indirect impacts to special-status plant species are not anticipated during implementation of the gen-tie line alignment alternatives.

Residual Impacts after Mitigation

Residual impacts to vegetation communities after mitigation would be similar to those described above. The potential for these impacts to occur would be avoided and/or minimized through implementation of the general measures outlined in Table 4.2-2. In accordance with incidental take permit conditions under the Federal ESA and/or CESA, compensatory mitigation would occur for impacts to vegetation communities that provide suitable habitat for federally and State-listed species (i.e., desert tortoise and Mohave ground squirrel). Mitigation is not required for special-status plant species, as impacts to such species are not anticipated to result from implementation of Alternative 4.

4.3 Biological Resources – Wildlife

4.3.1 Alternative 1 (No Action Alternative)

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via

an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. As a result, impacts to wildlife resources (including special-status wildlife species and wildlife corridors) present or potentially present on Federal lands managed by the BLM would not occur under this alternative. However, the gen-tie for the solar facility would likely be built on nearby private land and would impact similar wildlife resources as those present on BLM-managed land.

The Federal lands on which the gen-tie lines are proposed are located within a designated utility corridor, and would become available to other uses that are consistent with BLM's land use plan, including gen-tie lines for other solar projects.

4.3.2 *Alternative 2*

Direct and Indirect Impacts

Special-Status Wildlife Species

Impacts to special-status wildlife species from proposed herbicide use along the alignment is presented in Section 4.9.3. Other impacts to these species are addressed below.

Special-status wildlife species that may be directly or indirectly impacted by Alternative 2 are desert tortoise, Mohave ground squirrel, burrowing owl, other raptors and migratory birds, and American badger. Direct and indirect impacts to each of these species for Alternative 2 are addressed below.

Desert Tortoise

Construction activities (e.g., vegetation removal and grading) associated with Alternative 2 would result in permanent and temporary direct impacts to suitable desert tortoise habitat. The entire project area was determined to support suitable desert tortoise habitat; therefore, it is assumed that all areas impacted by Alternative 2 support suitable desert tortoise habitat. Total permanent impacts to suitable desert tortoise habitat would be identical under all three options of Alternative 2 (i.e., approximately 2.51 acres) (see Table 4.2-1). Total temporary impacts to suitable desert tortoise habitat would be approximately 19.78 acres under Option A and 11.99 acres under Options B and C (see Table 4.2-1).

Direct impacts during construction, operation, maintenance, and decommissioning of Alternative 2 may also include disturbance, injury, or mortality of desert tortoise individuals. Disturbance, injury, or mortality may result from individuals becoming trapped within open trenches, individuals being crushed or buried in their burrows, noise and/or vibration from heavy

equipment, increased human presence/activity, vehicle strikes, and encounters with pets belonging to visitors. Desert tortoise may also die or become injured when captured for relocation purposes, particularly during extreme temperatures or if they void their bladders. Pathogens may also be spread among desert tortoise. For desert tortoises near but not within the project area, removal of habitat within an individual’s home range could result in displacement stress that could result in loss of health, exposure, increased risk of predation, increased intraspecific competition, and death.

Indirect impacts to desert tortoise could occur from increased common raven presence associated with the construction of new elevated perching and nesting sites (e.g., transmission line structures). Development of new elevated perching and nesting sites could increase local raven numbers, which could result in increased predation on desert tortoise in the project area and vicinity. Additionally, garbage, road-killed animals, and water from increased human presence could attract common ravens and other desert tortoise predators such as coyotes and feral dogs.

Indirect effects could also result from potential introduction of invasive plants or from increased incidence of accidental wildfires (caused by equipment or downed lines), both of which could reduce adjacent habitat quality, diminish valuable forage, and impede movement of desert tortoise. Potential deposition of sediment loads during heavy rain events and flooding could potentially affect existing desert tortoise burrows in the project area.

Potential direct and indirect impacts to desert tortoise would be avoided and minimized through implementation of the general measures identified in Table 4.2-2 and desert tortoise-specific measures identified in Table 4.3-1. Permanent and temporary impacts to suitable desert tortoise habitat would be mitigated by acquiring and conserving off-site habitat in accordance with incidental take permit conditions under the Federal ESA and the CESA. Proof of acquisition of a conservation easement or a security on approved conservation lands would be required prior to issuance of a Notice to Proceed.

Table 4.3-1. Desert Tortoise Avoidance and Minimization Measures		
Measure Acronym	Measure Description	Timing
<i>Desert Tortoise (DT) Measures</i>		
DT-1	Prior to construction activities, the Applicant will prepare a site-specific Desert Tortoise Relocation Plan. The plan will provide details on desert tortoise clearance surveys and relocation, and will be consistent with current U.S. Fish and Wildlife Service (USFWS) guidelines (USFWS 2009).	Pre-construction
DT-2	The Applicant will submit the name and statement of qualifications in accordance with USFWS format of all proposed Authorized Biologists (ABs) to all applicable resource agency representatives for review and approval at least 30 days prior to initiation of any ground-disturbing activities and pre-activity surveys. Construction activities will not begin until all ABs are approved by all agencies including the BLM. ABs will lead the handling and relocation of desert tortoises when necessary. Biological Monitors (BMs) will ensure compliance with the protection measures, but may only assist with clearance surveys under the direction of an AB. BMs may handle desert	Pre-construction

Table 4.3-1. Desert Tortoise Avoidance and Minimization Measures

Measure Acronym	Measure Description	Timing
	tortoises at the discretion and under the supervision of an AB. Workers will immediately notify the AB or BM of all desert tortoise observations. The AB may be replaced with a new AB at any time during construction, operations and maintenance (O&M), or decommissioning with 30 days notification to all agencies. If there are unforeseen circumstances (e.g., AB becomes ill, changes jobs), agencies may be provided 14 day's notification.	
DT-5	Prior to the start of gen-tie line construction, ABs, and BMs under the direction of an AB, will conduct a desert tortoise pre-construction survey for desert tortoise within the gen-tie line right-of-way (ROW) in accordance with current USFWS guidelines (USFWS 2009). The pre-construction survey of the gen-tie line ROW will occur no more than 48 hours before planned activity. The pre-construction survey may be conducted during any time of year, and will consist of transect surveys at no greater than 5 meters (15 feet) within the gen-tie line ROW and a 50-foot buffer on either side of the ROW. All burrows that could provide shelter for a desert tortoise will be avoided if at all possible through final project design. Burrows that cannot be avoided will be excavated during the clearance survey.	Pre-construction
DT-6	Following clearance surveys, the AB will prepare a report that documents the survey methods used, names of surveyors, timing, weather, handling methods, capture and release locations of all desert tortoises found, individual desert tortoise data, and other relevant data. This report will be submitted within 15 days of completion of the clearance surveys to resource agency representatives including the BLM.	Pre-construction
DT-7	The Applicant will appoint ABs and BMs to oversee compliance with the avoidance and minimization measures for desert tortoise. The AB or BM will be present during construction activities, and will have the right to halt all activities that are in violation of the desert tortoise protection measures. Work will proceed only after hazards to the desert tortoise are removed and the species is no longer at risk, or the AB has moved the individual from harm's way in accordance with the Desert Tortoise Relocation Plan. The AB and BM will have a copy of all compliance measures while any work is being conducted in the gen-tie line ROW.	Pre-construction, construction, O&M, decommissioning
DT-8	Intentional killing or collection of special-status plant or wildlife species, including desert tortoise, will be prohibited. The ABs and BMs (during construction) will be notified immediately of any such occurrence. An AB will be responsible for notifying resource agency representatives, including the BLM, of any such occurrence within 24 hours.	Pre-construction, construction, O&M, decommissioning
DT-9	For emergency response situations, the AB will notify resource agency representatives, including the BLM, as soon as possible, but within 24 hours, by telephone, fax, or electronic mail communication.	Pre-construction, construction, O&M, decommissioning
DT-10	At the end of each construction workday, the AB or BM will ensure that all potential wildlife pitfalls resulting from construction activities (trenches, bores, and other excavations) are backfilled. If backfilling is not feasible, all trenches, borings, and other excavations will be sloped at a 3:1 ratio at the ends to provide wildlife escape ramps, covered completely to prevent wildlife access, or fully enclosed with desert tortoise exclusion fencing. All trenches, borings, and other excavations outside of the areas permanently fenced with desert tortoise exclusion fencing will be inspected periodically throughout the day, at the end of each workday, and at the beginning of each day by the AB or BM. Should a desert tortoise or other wildlife become trapped, the AB will remove and relocate the individual, as described in the Desert Tortoise Relocation Plan.	Construction, decommissioning

Table 4.3-1. Desert Tortoise Avoidance and Minimization Measures

Measure Acronym	Measure Description	Timing
DT-11	Any construction pipe, culvert, or similar structure with a diameter greater than 3 inches stored less than 8 inches aboveground outside a fenced area of desert tortoise habitat and left unattended for any length of time during the desert tortoise active period (i.e., early March through early June, and September through early November) will be inspected for desert tortoise before the material is moved, buried, or capped. As an alternative, all such structures may be capped or placed on pipe racks.	Pre-construction, construction, O&M, decommissioning
DT-12	<p>In the event a desert tortoise is injured or killed, resource agency representatives, including the BLM, will be notified immediately by phone. Notification will occur no later than 12 noon on the business day following the event if it occurs outside of normal business hours so that the resource agencies can determine if further actions are required to protect the species. Written follow-up notification via fax or electronic communication will be submitted to the resource agencies within 2 calendar days of the incident, and will include the following information, as relevant:</p> <p><u>Injured Desert Tortoise.</u> If a desert tortoise is injured as a result of activities during construction, O&M, or decommissioning, the AB will immediately take it to a wildlife rehabilitation and/or veterinarian clinic approved by the resource agencies, including the BLM. Any veterinarian bills for such injured animals will be paid for by the Applicant. Following phone notification, as required above, resource agency representatives will determine the final disposition of the injured animal, if it recovers. Written notification will include, at a minimum, the date, time, location, circumstances of the incident, and name of the facility where the animal was taken.</p> <p><u>Desert Tortoise Fatality.</u> If a desert tortoise is killed during construction, O&M, or decommissioning, a written report with the same information as an injury report will be submitted. The desert tortoise will be salvaged according to guidelines described in Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoise (Berry 2001). The Applicant will pay to have the desert tortoise transported and necropsied. The report will include the date and time of the finding or incident.</p>	Pre-construction, construction, O&M, decommissioning
DT-13	No later than 2 days following the above-required notification of an injured or killed desert tortoise, the Applicant will deliver to resource agency representatives, including the BLM, via fax or electronic communication the written report from the AB describing all reported incidents of an injured or killed desert tortoise, identifying who was notified and explaining when the incident occurred.	Pre-construction, construction, O&M, decommissioning
DT-14	On an annual basis, the AB will prepare a report for resource agency representatives, including the BLM, documenting the effectiveness and practicality of the avoidance, minimization, and mitigation measures that are in place, and making recommendations for modifying the measures to enhance desert tortoise protection, as needed. The report will also provide information on the overall biological-resources-related activities conducted, including the Worker Environmental Awareness Program (WEAP) training, clearance/pre-activity surveys, monitoring activities, and any observed desert tortoises, including injuries and fatalities.	Pre-construction, construction, O&M, decommissioning
DT-15	The AB will prepare annual monitoring reports that address management of the mitigation lands acquired to compensate for impacts to desert tortoise. The annual report will be submitted to the Applicant and resource agency representatives, including the BLM, at the end of each calendar year for the duration of the permit.	Pre-construction, construction, O&M, decommissioning

Table 4.3-1. Desert Tortoise Avoidance and Minimization Measures

Measure Acronym	Measure Description	Timing
DT-16	The Applicant will implement measures to ensure construction, O&M, and decommissioning of the gen-tie line do not attract ravens to the ROW by creating food or water subsidies, perch sites, roost sites, or nest sites.	Pre-construction, construction, O&M, decommissioning
DT-18	The AB will be responsible for WEAP trainings, surveys, compliance monitoring, and reporting.	Pre-construction, construction, O&M, decommissioning
DT-19	The potential for vehicles to strike desert tortoises will be minimized by educating employees on the proper procedures for operating vehicles and equipment within the gen-tie line ROW. Personnel will use established roadways (paved or unpaved) in traveling to and from the gen-tie line ROW. Cross-country-vehicle and equipment use outside of designated work areas will be prohibited. To minimize the likelihood for vehicle strikes of desert tortoise, speed limits will not exceed 25 miles per hour for travel outside of the permanent desert tortoise exclusion fence, including the gen-tie project site. The AB will define specific speed limits for the gen-tie line ROW depending on site conditions such as the likelihood of desert tortoise occurrence, visibility conditions, and weather.	Pre-construction, construction, O&M, decommissioning
DT-20	A trash abatement program will be established for the gen-tie line ROW to reduce the attractiveness to opportunistic predators of desert tortoise such as common ravens (<i>Corvus corax</i>), coyotes (<i>Canis latrans</i>), and free-roaming dogs. Trash and food items will be kept in closed containers, removed as needed, and disposed of at an appropriate off-site landfill. Dead and injured wildlife found within the gen-tie line ROW will also be removed, as needed, to reduce attraction of opportunistic predators. Dead and injured wildlife will be handled and removed in accordance with any applicable permits and plans.	Pre-construction, construction, O&M, decommissioning
DT-21	Workers will be prohibited from bringing pets and firearms to the project area.	Pre-construction, construction, O&M, decommissioning
DT-22	Any time a vehicle or construction equipment is parked in the gen-tie line ROW, the ground under the vehicle will be inspected for the presence of desert tortoise before the vehicle/equipment is moved. If a desert tortoise is present, the vehicle/equipment will not be moved until the desert tortoise moves on its own away from the vehicle/equipment. If it does not move within 15 minutes during construction, the AB will capture and relocate the animal to a safe location according to USFWS protocol. During O&M, desert tortoise will be moved out of harm's way in accordance with the Desert Tortoise Relocation Plan.	Pre-construction, construction, O&M (only as specified), decommissioning
DT-23	All vehicles and equipment will be in proper working condition to ensure that no potential exists for spills or releases of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The AB and BM will be immediately (i.e., same day) informed of any hazardous spills. Hazardous spills will be immediately cleaned up and the surface recontoured so it does not pose a hazard to desert tortoise. The contaminated soil will be properly disposed of at a licensed facility.	Pre-construction, construction, O&M, decommissioning

Table 4.3-1. Desert Tortoise Avoidance and Minimization Measures

Measure Acronym	Measure Description	Timing
DT-24	Water or BLM approved dust palliatives will be applied to the construction ROW, dirt roads, trenches, spoil piles, and other areas where ground disturbance takes place to minimize dust emissions and topsoil erosion. Dust palliatives will be nontoxic to wildlife and plants. For construction during the desert tortoise active season, an AB or BM will patrol areas of disturbance to ensure that water does not puddle for long periods and attract desert tortoise, common ravens, or other wildlife to the site. Operational ponding will be avoided through careful grading and hydrologic design.	Pre-construction, construction, O&M (only as specified), decommissioning

Mohave Ground Squirrel

Construction activities (e.g., vegetation removal and grading) associated with Alternative 2 would result in permanent and temporary direct impacts to suitable Mohave ground squirrel habitat. The entire project area was determined to support suitable Mohave ground squirrel habitat; therefore, it is assumed that all areas impacted by Alternative 2 support suitable Mohave ground squirrel habitat. Total permanent impacts to suitable Mohave ground squirrel habitat would be identical under all three options of Alternative 2 (i.e., approximately 2.51 acres) (see Table 4.2-1). Total temporary impacts to suitable Mohave ground squirrel habitat would be approximately 19.78 acres under Option A and 11.99 acres under Options B and C (see Table 4.2-1).

Mohave ground squirrel presence within the project area has not been confirmed, and potentially suitable burrows were not commonly encountered during field surveys. The Mohave ground squirrel is assumed present, and if so, direct impacts during construction, operation, maintenance, and decommissioning of Alternative 2 may include disturbance, injury, or mortality of Mohave ground squirrel individuals. Disturbance, injury, or mortality may result from individuals becoming trapped within open trenches, individuals being crushed or buried in their burrows, noise and/or vibration from heavy equipment, increased human presence/activity, vehicle strikes, and encounters with pets belonging to visitors.

Potential indirect impacts to Mohave ground squirrel, if present, could result from increased predation pressure from common ravens and raptors associated with the construction of new elevated perching and nesting sites (e.g., transmission line structures). Development of new elevated perching and nesting sites could increase raven and raptor numbers locally, which could result in increased predation on Mohave ground squirrel in the project area and vicinity. Additionally, garbage, road-killed animals, and water from increased human presence could attract common ravens, raptors, and other predators of ground squirrels such as coyotes and feral dogs.

Indirect effects could also result from potential introduction of invasive plants or from increased incidence of accidental wildfires (caused by equipment or downed lines), both of which could reduce adjacent habitat quality, diminish valuable forage, and impede movement of Mohave

ground squirrel. Potential deposition of sediment loads during heavy rain events and flooding could potentially affect potential ground squirrel burrows in the project area.

Potential direct and indirect impacts to Mohave ground squirrel would be avoided and minimized through implementation of the general measures identified in Table 4.2-2 and Mohave-ground-squirrel-specific measures identified in Table 4.3-2. Permanent and temporary impacts to suitable Mohave ground squirrel habitat would be mitigated by acquiring and conserving off-site habitat in accordance with incidental take permit conditions under the CESA.

Table 4.3-2. Mohave Ground Squirrel Avoidance and Minimization Measures		
Measure Acronym	Measure Description	Timing
<i>Mohave Ground Squirrel (MGS) Measures</i>		
MGS-1	On-site monitoring of ground-disturbing activities by a qualified biologist in the project area will occur. During construction activities, monthly and final compliance reports will be provided to the California Department of Fish and Wildlife and other relevant regulatory agencies including the BLM, documenting the effectiveness of mitigation measures and the level of take associated with the proposed project.	Pre-construction, construction, operations and maintenance (O&M) (only as specified), decommissioning
MGS-2	Impacts from vehicle strikes will be minimized by employee education on the proper procedures for operating vehicles on the site. Personnel will use established roadways (paved or unpaved) in traveling to and from the project area. Cross-country vehicle and equipment use outside of designated work areas will be prohibited. To minimize the likelihood for vehicle strikes of Mohave ground squirrel, speed limits will not exceed 25 miles per hour for travel outside of the tortoise exclusion fence. The Authorized Biologist will define specific speed limits for project areas depending on site conditions such as the likelihood of Mohave ground squirrel occurrence, visibility conditions, and weather.	Pre-construction, construction, O&M, decommissioning
MGS-3	A trash abatement program will be established. Trash and food items will be contained in closed containers and removed daily to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.	Pre-construction, construction, O&M, decommissioning

Burrowing Owl

Construction activities (e.g., vegetation removal and grading) associated with Alternative 2 would result in permanent and temporary direct impacts to suitable burrowing owl habitat. The entire project area was determined to support suitable burrowing owl habitat; therefore, it is assumed that all areas impacted by Alternative 2 support suitable burrowing owl habitat. Total permanent impacts to suitable burrowing owl habitat would be identical under all three options of Alternative 2 (i.e., approximately 2.51 acres) (see Table 4.2-1). Total temporary impacts to suitable burrowing owl habitat would be approximately 19.78 acres under Option A and 11.99 acres under Options B and C (see Table 4.2-1).

Burrowing owls were not detected during 2011 protocol surveys for the species; however, suitable burrows (one with fresh sign) were found south of the project area, in and around the adjacent proposed private lands solar facility site. Given the propensity of this species to nest in disturbed habitat, the project area and/or vicinity could become occupied by burrowing owl prior to construction or during the operational lifespan of the proposed project. If burrowing owl is

present, direct impacts during construction, operation, and decommissioning of Alternative 2 may include disturbance, injury, or mortality of individuals. Disturbance, injury, or mortality may result from individuals being crushed or buried in their burrows, noise and/or vibration from heavy equipment, increased human presence/activity, vehicle strikes, and encounters with pets belonging to visitors. In addition, burrowing owls potentially occupying the project area may be injured or killed by collisions with or electrocution by overhead transmission wires.

Potential indirect impacts to burrowing owl, if present, could result from increased predation pressure from other raptors associated with the construction of new elevated perching and nesting sites (e.g., transmission line structures). Development of new elevated perching and nesting sites could increase raptor numbers locally, which could result in increased predation on burrowing owl in the project area and vicinity. Additionally, garbage, road-killed animals, and water from increased human presence could attract raptors and other predators of burrowing owl such as coyotes and feral dogs.

Indirect effects could also result from potential introduction of invasive plants or from increased incidence of accidental wildfires (caused by equipment or downed lines), both of which could reduce adjacent habitat quality for burrowing owl. Potential deposition of sediment loads during heavy rain events and flooding could potentially affect burrows in the project area.

Potential direct and indirect impacts to burrowing owl would be avoided and minimized through implementation of the general measures identified in Table 4.2-2. In addition, the avian-specific measures contained in Table 4.3-3 would be implemented and would provide broad protections for all avian species. The Applicant would comply with Avian Power Line Interaction Committee (APLIC 2012) guidelines for preventing avian electrocutions and collisions with overhead power lines to avoid and minimize impacts to burrowing owl and other avian species.

Table 4.3-3. Avian Specific Avoidance and Minimization Measures		
Measure Acronym	Measure Description	Timing
ASM-1	When above-ground lines, transformers, or conductors are necessary, all will be spaced and designed to comply with the Avian Power Line Interaction Committee's (APLIC) suggested practices to prevent avian electrocutions (APLIC 2012).	Design
ASM-2	When above-ground lines are necessary, power line/wire marking devices, including aerial marker spheres, swinging plates, bird diverters, paint, and other bird avoidance devices, will be used if determined necessary to prevent avian collisions as outlined in the APLIC's Reducing Avian Collisions with Power Lines: State of the Art (2012). Bird flight diverters have proven to be effective for reducing and preventing bird collisions in some cases (CEC 2002).	Design
ASM-3	The lattice structures, if used, will be designed and/or fitted to prevent raptors and other birds from nesting in accordance with 2012 APLIC guidelines to the extent practicable.	Design
ASM-4	To the extent possible, ground disturbance will occur outside of the typical avian breeding season (February 15 through September 15). If ground disturbance must occur during the general avian breeding season, a pre-	Construction

Table 4.3-3. Avian Specific Avoidance and Minimization Measures

Measure Acronym	Measure Description	Timing
	<p>construction nest survey will be conducted within the impact area and a 500-foot (150-meter) buffer (where off-site access is granted) by a Biological Monitor (BM) no more than 3 days prior to the start of construction in any given area of the project footprint. Construction crews will coordinate with a BM at least 3 days prior to the start of ground disturbance activity in a given area to ensure that it has been adequately surveyed. If no active nests are discovered, ground disturbance may proceed. If active nests are observed that could be disturbed by ground disturbance activities, these nests and an appropriately sized buffer will be avoided until the young have fledged and/or the BM determines that no substantial impacts are anticipated to the nesting birds or their young. Typically a 500-foot (150-meter) no-disturbance buffer will be created around active raptor nests (0.5-mile [804-meter] buffer for an active Swainson’s hawk nest), a 250-foot (76-meter) no-disturbance buffer will be created around nests of non-raptor special-status birds, and a no-disturbance buffer of less than 250 feet (75 meters) will be created for common passerines. The BM will be responsible for coordinating with the U.S. Fish and Wildlife Service and the BLM to determine if ground disturbance and associated construction activities could disturb an active nest; the appropriately sized buffer to avoid active nests; and when nests are no longer active. If ground disturbance ceases for 3 or more consecutive days during the nesting season, repeat nesting bird surveys will be required to ensure that new nesting locations have not been established within the impact area and the defined buffers.</p>	
ASM-5	<p>Construction-generated noise may result in disturbance to nesting migratory birds. The following measures will be incorporated to minimize noise generated from construction activities:</p> <ol style="list-style-type: none"> a. Heavy equipment will be repaired as far as practical from habitats where nesting birds may be present. The BM will determine where heavy equipment repair may take place on-site. b. Construction equipment, including generators and compressors, will be equipped with manufacturers’ standard noise-control devices or better (e.g., mufflers, acoustical lagging, and/or engine enclosures). c. The construction contractor will maintain all construction vehicles and equipment in proper operating condition and provide mufflers on all equipment. 	Construction
ASM-6	<p>Pre-construction surveys will occur during the non-breeding season (September 1 through January 31) regardless of the construction start date to identify burrowing owl that may breed on-site during the breeding season (February 1 through August 31). Per California Department of Fish and Wildlife (CDFW) guidance (CDFG 2012), a take avoidance survey (i.e., pre-construction clearance survey) will be conducted by a BM to determine presence or absence of burrowing owl no fewer than 14 days and no more than 30 days prior to initiating construction activities. Surveys will include areas within the project footprint and a surrounding 500-foot (150-meter) buffer (where access is granted). If burrowing owl activity is detected at a burrow during the non-breeding season, a 164-foot (50-meter) buffer will be flagged surrounding the occupied burrow. If burrowing owl activity is detected at a burrow during the breeding season, a 246-foot (75-meter) buffer will be flagged surrounding the occupied burrow. If burrowing owl is detected within the project footprint, the applicant will coordinate with CDFW and BLM to discuss exclusion measures that will be outlined in a Burrowing Owl Exclusion Plan.</p>	Construction

Table 4.3-3. Avian Specific Avoidance and Minimization Measures		
Measure Acronym	Measure Description	Timing
ASM-7	Incidental avian carcasses or injured birds found during construction will be documented. Should carcasses be found by project personnel, the carcass will be photographed, the location will be marked, the carcass will not be moved, and a BM will be contacted to examine the carcass. When a carcass is detected, the following data will be recorded (to the extent possible): observer, date/time, species or most precise species group possible, sex, age, estimated time since death, cause of death or other pertinent information, distance and bearing to nearest structure that may have been associated with the mortality, location (recorded with a Global Positioning System unit), and condition of carcass. Carcasses incidentally detected during construction will be collected; rubber gloves will be used to handle all carcasses to eliminate possible transmission of disease. Carcasses will be placed in a plastic bag, labeled, and frozen for up to 1 year for future reference and possible necropsy if cause of death cannot be determined upon physical inspection. Incidental finds during construction will not be included in any statistical analyses.	Construction
ASM-8	To the extent possible, operations and maintenance activities requiring vegetation management will occur outside of the general avian breeding season (February 15 through September 15). If vegetation management must occur during the general avian breeding season, a pre-construction nest survey will be conducted within the impact area and a 500-foot (150-meter) buffer by a BM no more than 3 days prior to the start of activities. If no active nests are discovered, vegetation management activities may proceed with no additional measures. If active nests are observed that could be disturbed by construction activities, these nests and an appropriately sized buffer will be avoided until the young have fledged. A BM will be responsible for determining if vegetation management activities could disturb an active nest, the appropriately sized buffer to avoid active nests, and when nests are no longer active. If vegetation management activities cease for 3 consecutive days, following which activities are reinitiated during the nesting season, additional nesting bird surveys will be required.	Operations and Maintenance

Other Raptors and Migratory Birds

Potential direct impacts to other raptor species and migratory birds protected by the MBTA include removal of nesting and/or foraging habitat during construction of the proposed project. Total permanent impacts to suitable nesting and foraging habitat for raptors and migratory birds would be identical under all three options of Alternative 2 (i.e., approximately 2.51 acres) (Table 4.2-1). Total temporary impacts to suitable nesting and foraging habitat for raptors and migratory birds would be approximately 19.78 acres under Option A and 11.99 acres under Options B and C (Table 4.2-1). The degree of impact on individual raptor and migratory bird species would vary depending on species-specific behaviors in the project area and habitat requirements. Potential impacts to raptor and migratory bird nest sites would be more detrimental relative to impacts to foraging habitat for such species. Direct impacts to tree or cliff raptor nest sites are not expected, given that these features are generally absent from the project area; however, nest sites for ground-nesting raptors may be directly impacted during construction of Alternative 2.

Potential direct impacts to other raptor species and migratory birds also include potential injury or mortality. Injury or mortality may occur during construction if individuals are struck by equipment or vehicles. Injury or mortality to avian species resulting from construction most frequently occurs during vegetation management and involves eggs, nestlings, and recently fledged young that cannot safely avoid equipment. Injury or mortality may also result from collisions or electrocution with overhead transmission wires. Avian power line collisions are a widespread problem with potentially significant local impacts when high-risk conditions are present (CEC, 2002). The level of risk depends on a combination of biological and physical factors, such as weather, design and placement of transmission structures, and species-specific behavior.

Potential indirect impacts to raptors and migratory birds include increased noise levels, human use and the potential for long-term unauthorized trespass, erosion, sedimentation, storm water contaminant runoff, and risk of fire, as well as the potential introduction and proliferation of invasive non-native plant species. These indirect impacts have the potential to degrade raptor and migratory bird habitat and alter breeding, foraging, and migratory behaviors.

Potential direct and indirect impacts to other raptors and migratory birds would be avoided and minimized through implementation of the general measures identified in Table 4.2-2. In addition, the avian-specific measures contained in Table 4.3-3 would be implemented, and would provide broad protections for all avian species. Finally, the Applicant would comply with Avian Power Line Interaction Committee (APLIC, 2012) guidelines for preventing avian electrocutions and collisions with overhead power lines) to avoid and minimize impacts to raptors, burrowing owl, migratory birds, and other avian species.

American Badger

Construction activities associated with Alternative 2 would result in permanent and temporary direct impacts to suitable American badger habitat. The entire project area was determined to support suitable American badger habitat; therefore, it is assumed that all areas impacted by Alternative 2 support suitable badger habitat. Total permanent impacts to suitable American badger habitat would be identical under all three options of Alternative 2 (i.e., approximately 2.51 acres) (see Table 4.2-1). Total temporary impacts to suitable American badger habitat would be approximately 19.78 acres under Option A and 11.99 acres under Options B and C (see Table 4.2-1).

An American badger was observed in a burrow west of SR-14 in 2011, and three dens were observed in the project area and immediate vicinity. Potential direct impacts during construction, operation, and decommissioning of each gen-tie line alignment alternative may also include disturbance, injury, or mortality of American badger individuals. Disturbance, injury, or mortality may result from individuals becoming trapped within open trenches,; individuals being crushed or buried in their burrows/dens,; noise and/or vibrations from heavy equipment,;

increased human presence/activity,; vehicle strikes,; and encounters with pets belonging to visitors.

Indirect effects to American badger could result from potential introduction of invasive plants or from increased incidence of accidental wildfires (caused by equipment or downed lines), both of which could reduce habitat quality for the American badger. Potential deposition of sediment loads during heavy rain events and flooding downstream could potentially affect existing burrows/dens in the project area.

Potential direct and indirect impacts to American badger would be avoided and minimized through implementation of the general measures identified in Table 4.2-2.

Wildlife Corridors

The project area does not lie within a wildlife connectivity area as identified by the California Essential Habitat Connectivity Project (Spencer et al., 2010). However, at the local level, wildlife species are likely to use the project area and surrounding large expanses of open habitat for movement related to dispersal and home range activities. In addition, the proposed project is located within the Pacific Flyway, a major north/south migration route for birds that travel between North and South America.

Construction of Alternative 2 would not result in the permanent or temporary installation of structures that would prevent wildlife (including terrestrial and avian) movement through the project area. In addition, use of the service road during construction, operation, and decommissioning of Alternative 2 would be low and would not prohibit terrestrial wildlife movement between large patches of habitat. Therefore, direct impacts to wildlife corridors resulting from Alternative 2 are not expected.

Indirect impacts to wildlife movement (including terrestrial and avian) may result during construction, operation, and decommissioning of Alternative 2 from increased human presence, noise, and edge effects associated with development. These indirect impacts may result in avoidance of the project area, during movements and may have harmful effects on individuals. These impacts may vary depending on the population structure, size of the home range, migration patterns, and dispersal movements of the species being considered, as well as the species' behavioral response to noise, degraded surrounding habitat, and other anthropogenic influences. Indirect impacts to wildlife movement following construction would be minimal given that human presence and activity during operation and maintenance of Alternative 2 would be minimal and infrequent.

Potential indirect impacts to wildlife movement would be avoided and minimized through implementation of the general measures identified in Table 4.2-2.

Residual Impacts after Mitigation

Residual impacts to wildlife resources (including special-status wildlife species and wildlife corridors) after mitigation would be similar to those described above for each resource. The above. However, the potential for these impacts to occur would be avoided and /or minimized through implementation of the measures outlined in Tables 4.2-2 (General Measures), Table 4.3-1 (Desert Tortoise Measures), and Table 4.3-2 (Mohave Ground Squirrel Measures). In addition, impacts to avian species (including migratory birds, burrowing owl, and other raptor species) would be avoided through compliance with Avian Power Line Interaction Committee (APLIC (2012) guidelines and implementation of the avian protection measures contained in Table 4.3.3. Permanent and temporary impacts to suitable habitat for Federally- and State-listed species would be mitigated by acquiring and conserving off-site habitat in accordance with incidental take permit conditions under the Federal Endangered Species Act and the California Endangered Species Act. Thus, although while suitable habitat for Federally- and State- listed species would be impacted with implementation of Alternative 2, the impacts would be offset with acquisition and conservation of suitable habitat in the region. Also, direct impacts to individuals of special-status wildlife species are not expected to compromise the recovery of such species, given that few individuals would potentially be impacted.

4.3.3 Alternative 3

Direct and Indirect Impacts

Special-Status Wildlife Species

Impacts to special-status wildlife species from proposed herbicide use along the alignment is presented in Section 4.9.3. Other impacts to these species are addressed below.

Special-status wildlife species that may be directly or indirectly impacted by Alternative 3 are desert tortoise, Mohave ground squirrel, burrowing owl, other raptors and migratory birds, and American badger. Direct and indirect impacts to each of these species for Alternative 3 are addressed below.

Desert Tortoise

Construction activities associated with Alternative 3 would result in permanent and temporary direct impacts to suitable desert tortoise habitat. The entire project area was determined to support suitable desert tortoise habitat; therefore, it is assumed that all areas impacted by Alternative 3 support suitable desert tortoise habitat. Alternative 3 would result in approximately 3.2 acres of permanent direct impacts and approximately 73.1 acres of temporary direct impacts to suitable desert tortoise habitat (see Table 4.2-1). Permanent and temporary direct impacts to suitable desert tortoise habitat under Alternative 3 would be greater than those expected under Alternative 2.

Direct impacts during construction, operation, and decommissioning of Alternative 3 may include disturbance, injury, or mortality of desert tortoise individuals. Disturbance, injury, or mortality may result from individuals becoming trapped within open trenches, individuals being crushed or buried in their burrows, noise and/or vibration from heavy equipment, increased human presence/activity, vehicle strikes, and encounters with pets belonging to visitors. Desert tortoises may also die or become injured when captured for relocation purposes, particularly during extreme temperatures or if they void their bladders. Pathogens may also be spread among desert tortoises. For desert tortoises near but not within the project area, removal of habitat within an individual's home range could result in displacement stress that could result in loss of health, exposure, increased risk of predation, increased intraspecific competition, and death.

Indirect impacts to desert tortoise could occur from increased common raven presence associated with the construction of new elevated perching and nesting sites (e.g., transmission line structures). Development of new elevated perching and nesting sites could increase local raven numbers, which could result in increased predation on desert tortoise in the project area and vicinity. Additionally, garbage, road-killed animals, and water from increased human presence could attract common ravens and other desert tortoise predators such as coyotes and feral dogs.

Indirect effects could also result from potential introduction of invasive plants or from increased incidence of accidental wildfires (caused by equipment or downed lines), both of which could reduce adjacent habitat quality, diminish valuable forage, and impede movement of desert tortoise. Potential deposition of sediment loads during heavy rain events and flooding could potentially affect existing desert tortoise burrows in the project area.

Potential direct and indirect impacts to desert tortoise would be avoided and minimized through implementation of the general measures identified in Table 4.2-2 and desert-tortoise-specific measures identified in Table 4.3-1. Permanent and temporary impacts to suitable desert tortoise habitat would be mitigated by acquiring and conserving off-site habitat in accordance with incidental take permit conditions under the Federal ESA and the CESA. Proof of acquisition of a conservation easement or a security on approved conservation lands would be required prior to issuance of a Notice to Proceed.

Mohave Ground Squirrel

Construction activities associated with Alternative 3 would result in permanent and temporary direct impacts to suitable Mohave ground squirrel habitat. The entire project area was determined to support suitable Mohave ground squirrel habitat; therefore, it is assumed that all areas impacted by Alternative 3 support suitable Mohave ground squirrel habitat. Alternative 3 would result in approximately 3.2 acres of permanent direct impacts and approximately 73.1 acres of temporary direct impacts to suitable Mohave ground squirrel habitat (see Table 4.2-1).

Permanent and temporary direct impacts to suitable Mohave ground squirrel habitat under Alternative 3 would be greater than those expected under Alternative 2.

Mohave ground squirrel presence within the project area has not been confirmed, and potentially suitable burrows were not commonly encountered during field surveys for the proposed project. If Mohave ground squirrel is present, direct impacts during construction, operation, and decommissioning of Alternative 3 may include disturbance, injury, or mortality of Mohave ground squirrel individuals. Disturbance, injury, or mortality may result from individuals becoming trapped within open trenches, individuals being crushed or buried in their burrows, noise and/or vibration from heavy equipment, increased human presence/activity, vehicle strikes, and encounters with pets belonging to visitors.

Potential indirect impacts to Mohave ground squirrel, if present, could result from increased predation pressure from common ravens and raptors associated with the construction of new elevated perching and nesting sites (e.g., transmission line structures). Development of new elevated perching and nesting sites could increase raven and raptor numbers locally, which could result in increased predation of Mohave ground squirrel in the project area and vicinity. Additionally, garbage, road-killed animals, and water from increased human presence could attract common ravens, raptors, and other predators of Mohave ground squirrel such as coyotes and feral dogs.

Indirect effects could also result from potential introduction of invasive plants or from increased incidence of accidental wildfires (caused by equipment or downed lines), both of which could reduce adjacent habitat quality, diminish valuable forage, and impede movement of Mohave ground squirrel. Potential deposition of sediment loads during heavy rain events and flooding could potentially affect potential Mohave ground squirrel burrows in the project area.

Potential direct and indirect impacts to Mohave ground squirrel would be avoided and minimized through implementation of the general measures identified in Table 4.2-2 and Mohave-ground-squirrel-specific measures identified in Table 4.3-2. Permanent and temporary impacts to suitable Mohave ground squirrel habitat would be mitigated by acquiring and conserving off-site habitat in accordance with incidental take permit conditions under the CESA.

Burrowing Owl

Construction activities associated with Alternative 3 would result in permanent and temporary direct impacts to suitable burrowing owl habitat. The entire project area was determined to support suitable burrowing owl habitat; therefore, it is assumed that all areas impacted by Alternative 3 support suitable burrowing owl habitat. Alternative 3 would result in approximately 3.2 acres of permanent direct impacts and approximately 73.1 acres of temporary direct impacts to suitable burrowing owl habitat (see Table 4.2-1). Permanent and temporary direct impacts to suitable burrowing owl habitat under Alternative 3 would be greater than those expected under Alternative 2.

Burrowing owls were not detected during 2011 protocol surveys for the species; however, suitable burrows (one with fresh sign) were found south of the project area, in and around the

adjacent proposed private lands solar facility site. Given the propensity of this species to nest in disturbed habitat, the project area and/or vicinity could become occupied by burrowing owl prior to construction or during the operational lifespan of the proposed project. If burrowing owl is present, direct impacts during construction, operation, and decommissioning of Alternative 3 may also include disturbance, injury, or mortality of individuals. Disturbance, injury, or mortality may result from individuals being crushed or buried in their burrows, noise and/or vibration from heavy equipment, increased human presence/activity, vehicle strikes, and encounters with pets belonging to visitors. In addition, burrowing owls potentially occupying the project area may be injured or killed by collisions with or electrocution by overhead transmission wires.

Potential indirect impacts to burrowing owl, if present, could result from increased predation pressure from other raptors associated with the construction of new elevated perching and nesting sites (e.g., transmission line structures). Development of new elevated perching and nesting sites could increase raptor numbers locally, which could result in increased predation on burrowing owl in the project area and vicinity. Additionally, garbage, road-killed animals, and water from increased human presence could attract other raptors and other predators of burrowing owl such as coyotes and feral dogs.

Indirect effects could also result from potential introduction of invasive plants or from increased incidence of accidental wildfires (caused by equipment or downed lines), both of which could reduce adjacent habitat quality for burrowing owl. Potential deposition of sediment loads during heavy rain events and flooding could potentially affect burrows in the project area.

Potential direct and indirect impacts to burrowing owl would be avoided and minimized through implementation of the general measures identified in Table 4.2-2. In addition, the avian-specific measures contained in Table 4.3-3 would be implemented, and would provide broad protections for all avian species. Finally, the Applicant would comply with Avian Power Line Interaction Committee (APLIC 2012) guidelines for preventing avian electrocutions and collisions with overhead power lines to avoid and minimize impacts to burrowing owl and other avian species.

Other Raptors and Migratory Birds

Potential direct impacts to other raptor species and migratory birds protected by the MBTA include removal of nesting and/or foraging habitat during construction of the proposed project. Alternative 3 would result in approximately 3.2 acres of permanent direct impacts and approximately 73.1 acres of temporary direct impacts to suitable raptor and migratory bird habitat (Table 4.2-1). Permanent and temporary direct impacts to suitable raptor and migratory bird habitat under Alternative 3 would be greater than those expected under Alternative 2. The degree of impact on individual raptor and migratory bird species would vary depending on species-specific behaviors in the project area and habitat requirements. Potential impacts to raptor and migratory bird nest sites would be more detrimental relative to impacts to foraging

habitat for such species. Direct impacts to tree or cliff raptor nest sites are not expected given that these features are generally absent from the project area; however, nest sites for ground-nesting raptors may be directly impacted during construction of Alternative 3.

Potential direct impacts to other raptor species and migratory birds also include potential injury or mortality. Injury or mortality may occur during construction if individuals are struck by equipment or vehicles. Injury or mortality to avian species resulting from construction most frequently occurs during vegetation management and involves eggs, nestlings, and recently fledged young that cannot safely avoid equipment. Injury or mortality may also result from collisions or electrocution with overhead transmission wires. Avian power line collisions are a widespread problem with potentially significant local impacts when high-risk conditions are present (CEC 2002). The level of risk depends on a combination of biological and physical factors such as weather, design and placement of transmission structures, and species-specific behavior.

Potential indirect impacts to raptors and migratory birds include increased noise levels, human use and the potential for long-term unauthorized trespass, erosion, sedimentation, storm water contaminant runoff, and risk of fire, as well as the potential introduction and proliferation of invasive nonnative plant species. These indirect impacts have the potential to degrade raptor and migratory bird habitat and alter breeding, foraging, and migratory behaviors.

Potential direct and indirect impacts to other raptors and migratory birds would be avoided and minimized through implementation of the general measures identified in Table 4.2-2. In addition, the avian-specific measures contained in Table 4.3-3 would be implemented, and would provide broad protections for all avian species. Finally, the Applicant would comply with Avian Power Line Interaction Committee (APLIC 2012) guidelines for preventing avian electrocutions and collisions with overhead power lines to avoid and minimize impacts to raptor species and migratory birds.

American Badger

Construction activities associated with Alternative 3 would result in permanent and temporary direct impacts to suitable American badger habitat. The entire project area was determined to support suitable American badger habitat; therefore, it is assumed that all areas impacted by Alternative 3 support suitable badger habitat. Alternative 3 would result in approximately 3.2 acres of permanent direct impacts and approximately 73.1 acres of temporary direct impacts to suitable American badger habitat (Table 4.2-2). Permanent and temporary direct impacts to suitable American badger habitat under Alternative 3 would be greater than those expected under Alternative 2.

An American badger was observed in a burrow west of SR-14 in 2011, and three dens were observed in the project area and immediate vicinity. Potential direct impacts during construction, operation, and decommissioning of each gen-tie line alignment alternative may also include

disturbance, injury, or mortality of American badger individuals. Disturbance, injury, or mortality may result from individuals becoming trapped within open trenches, individuals being crushed or buried in their burrows/dens, noise and/or vibration from heavy equipment, increased human presence/activity, vehicle strikes, and encounters with pets belonging to visitors.

Indirect effects to American badger could result from potential introduction of invasive plants or from increased incidence of accidental wildfires (caused by equipment or downed lines), both of which could reduce habitat quality for American badger. Potential deposition of sediment loads during heavy rain events and flooding could potentially affect existing burrows/dens in the project area.

Potential direct and indirect impacts to American badger would be avoided and minimized through implementation of the general measures identified in Table 4.2-2.

Wildlife Corridors

The project area does not lie within a wildlife connectivity area as identified by the California Essential Habitat Connectivity Project (Spencer et al. 2010). However, at the local level, wildlife species are likely to use the project area and surrounding large expanses of open habitat for movement related to dispersal and home range activities. In addition, the proposed project is located within the Pacific Flyway, a major north/south migration route for birds that travel between North and South America.

Construction of Alternative 3 would not result in the permanent or temporary installation of structures that would prevent wildlife (including terrestrial and avian) movement through the project area. In addition, use of the service road during construction, operation, and decommissioning of Alternative 3 would be low and would not prohibit terrestrial wildlife movement between large patches of habitat. Therefore, direct impacts to wildlife corridors resulting from Alternative 3 are not expected.

Indirect impacts to wildlife movement (including terrestrial and avian) may result during construction, operation, and decommissioning of Alternative 3 from increased human presence, noise, and edge effects associated with development. These indirect impacts may result in avoidance of the project area during movements, and may have harmful effects on individuals. These impacts would vary depending on the population structure, size of the home range, migration patterns, and dispersal movements of the species being considered, as well as the species' behavioral response to noise, degraded surrounding habitat, and other anthropogenic influences. Indirect impacts to wildlife movement following construction would be minimal given that human presence and activity during operation and maintenance of Alternative 3 would be minimal and infrequent.

Potential indirect impacts to wildlife movement would be avoided and minimized through implementation of the general measures identified in Table 4.2-2.

Residual Impacts after Mitigation

Residual impacts to wildlife resources (including special-status wildlife species and wildlife corridors) after mitigation would be similar to those described for each resource above. The potential for these impacts to occur would be avoided and/or minimized through implementation of the measures outlined in Table 4.2-2 (General Measures), Table 4.3-1 (Desert Tortoise Measures), and Table 4.3-2 (Mohave Ground Squirrel Measures). In addition, impacts to avian species (including migratory birds, burrowing owl, and other raptor species) would be avoided and minimized through implementation of Avian Power Line Interaction Committee (APLIC 2012) guidelines and implementation of the avian protection measures contained in Table 4.3.3. Permanent and temporary impacts to suitable habitat for Federal- and State-listed species would be mitigated by acquiring and conserving off-site habitat in accordance with incidental take permit conditions under the Federal ESA and the CESA. Thus, although suitable habitat for Federal- and State-listed species would be impacted with implementation of Alternative 3, the impacts would be offset with acquisition and conservation of suitable habitat in the region. Also, direct impacts to individuals of special-status wildlife species are not expected to compromise the recovery of such species, given that few individuals would potentially be impacted.

4.3.4 *Alternative 4*

Direct and Indirect Impacts

Special-Status Wildlife Species

Impacts to special-status wildlife species from proposed herbicide use along the alignment is presented in Section 4.9.3. Other impacts to these species are addressed below.

Special-status wildlife species that may be directly or indirectly impacted by Alternative 4 are desert tortoise, Mohave ground squirrel, burrowing owl, other raptors and migratory birds, and American badger. Direct and indirect impacts to each of these species for Alternative 4 are addressed below.

Desert Tortoise

Construction activities associated with Alternative 4 would result in permanent and temporary direct impacts to suitable desert tortoise habitat. The entire project area was determined to support suitable desert tortoise habitat; therefore, it is assumed that all areas impacted by Alternative 4 support suitable desert tortoise habitat. Alternative 4 would result in approximately 7.2 acres of permanent direct impacts and approximately 126 acres of temporary direct impacts to suitable desert tortoise habitat (Table 4.2-1). Direct impacts to suitable desert tortoise habitat would be greatest under this alternative relative to other action alternatives analyzed herein.

Direct impacts during construction, operation, and decommissioning of Alternative 4 may include disturbance, injury, or mortality of desert tortoise individuals. Disturbance, injury, or mortality may result from individuals becoming trapped within open trenches, individuals being

crushed or buried in their burrows, noise and/or vibration from heavy equipment, increased human presence/activity, vehicle strikes, and encounters with pets belonging to visitors. Desert tortoise may also die or become injured when captured for relocation purposes, particularly during extreme temperatures or if they void their bladders. Pathogens may also be spread among desert tortoises. For desert tortoises near but not within the project area, removal of habitat within an individual's home range could result in displacement stress that could result in loss of health, exposure, increased risk of predation, increased intraspecific competition, and death.

Indirect impacts to desert tortoise could occur from increased common raven presence associated with the construction of new elevated perching and nesting sites (e.g., transmission line structures). Development of new elevated perching and nesting sites could increase local raven numbers, which could result in increased predation on desert tortoise in the project area and vicinity. Additionally, garbage, road-killed animals, and water from increased human presence could attract common ravens and other desert tortoise predators such as coyotes and feral dogs.

Indirect effects could also result from potential introduction of invasive plants or from increased incidence of accidental wildfires (caused by equipment or downed lines), both of which could reduce adjacent habitat quality, diminish valuable forage, and impede movement of desert tortoise. Potential deposition of sediment loads during heavy rain events and flooding could potentially affect existing desert tortoise burrows in the project area.

Potential direct and indirect impacts to desert tortoise would be avoided and minimized through implementation of the general measures identified in Table 4.2-2 and desert-tortoise-specific measures identified in Table 4.3-1. Permanent and temporary impacts to suitable desert tortoise habitat would be mitigated by acquiring and conserving off-site habitat in accordance with the West Mojave Amendment to the CDCA Plan, which requires that impacts to desert tortoise habitat be compensated at a 1:1 ratio, and the incidental take permit conditions under both the Federal ESA and the CESA. Proof of acquisition of a conservation easement or a security on approved conservation lands would be required prior to issuance of a Notice to Proceed.

Mohave Ground Squirrel

Construction activities associated with Alternative 4 would result in permanent and temporary direct impacts to suitable Mohave ground squirrel habitat. The entire project area was determined to support suitable Mohave ground squirrel habitat; therefore, it is assumed that all areas impacted by Alternative 4 support suitable Mohave ground squirrel habitat. Alternative 4 would result in approximately 7.2 acres of permanent direct impacts and approximately 126 acres of temporary direct impacts to suitable Mohave ground squirrel habitat (Table 4.2-1). Direct impacts to suitable Mohave ground squirrel habitat would be greatest under this alternative relative to other action alternatives analyzed herein.

Mohave ground squirrel presence within the project area has not been confirmed, and potentially suitable burrows were not commonly encountered during field surveys for the proposed project.

If Mohave ground squirrel is present, direct impacts during construction, operation, and decommissioning of Alternative 4 may include disturbance, injury, or mortality of Mohave ground squirrel individuals. Disturbance, injury, or mortality may result from individuals becoming trapped within open trenches, individuals being crushed or buried in their burrows, noise and/or vibration from heavy equipment, increased human presence/activity, vehicle strikes, and encounters with pets belonging to visitors.

Potential indirect impacts to Mohave ground squirrel, if present, could result from increased predation pressure from common ravens and raptors associated with construction of new elevated perching and nesting sites (e.g., transmission line structures). Development of new elevated perching and nesting sites could increase raven and raptor numbers locally, which could result in increased predation on Mohave ground squirrel in the project area and vicinity. Additionally, garbage, road-killed animals, and water from increased human presence could attract common ravens, raptors, and other predators of Mohave ground squirrels such as coyotes and feral dogs.

Indirect effects could also result from potential introduction of invasive plants or from increased incidence of accidental wildfires (caused by equipment or downed lines), both of which could reduce adjacent habitat quality, diminish valuable forage, and impede movement of Mohave ground squirrel. Potential deposition of sediment loads during heavy rain events and flooding could potentially affect potential Mohave ground squirrel burrows in the project area.

Potential direct and indirect impacts to Mohave ground squirrel would be avoided and minimized through implementation of the general measures identified in Table 4.2-2 and Mohave-ground-squirrel-specific measures identified in Table 4.3-2. Permanent and temporary impacts to suitable Mohave ground squirrel habitat would be mitigated by acquiring and conserving off-site habitat in accordance with incidental take permit conditions under the CESA.

Burrowing Owl

Construction activities associated with Alternative 4 would result in permanent and temporary direct impacts to suitable burrowing owl habitat. The entire project area was determined to support suitable burrowing owl habitat; therefore, it is assumed that all areas impacted by Alternative 4 support suitable burrowing owl habitat. Alternative 4 would result in approximately 7.2 acres of permanent direct impacts and approximately 126 acres of temporary direct impacts to suitable burrowing owl habitat (Table 4.2-1). Direct impacts to suitable burrowing owl habitat would be greatest under this alternative relative to other action alternatives analyzed herein.

Burrowing owls were not detected during 2011 protocol surveys for the species; however, suitable burrows (one with fresh sign) were found south of the project area, in and around the adjacent proposed private lands solar facility site. Given the propensity of this species to nest in disturbed habitat, the project area and/or vicinity could become occupied by burrowing owl prior

to construction or during the operational lifespan of the project. If burrowing owl is present, direct impacts during construction, operation, and decommissioning of Alternative 4 may include disturbance, injury, or mortality of individuals. Disturbance, injury, or mortality may result from individuals being crushed or buried in their burrows, noise and/or vibration from heavy equipment, increased human presence/activity, vehicle strikes, and encounters with pets belonging to visitors. In addition, burrowing owls potentially occupying the project area may be injured or killed by collisions with or electrocution by overhead transmission wires.

Potential indirect impacts to burrowing owl, if present, could result from increased predation pressure from other raptors associated with the construction of new elevated perching and nesting sites (e.g., transmission line structures). Development of new elevated perching and nesting sites could increase raptor numbers locally, which could result in increased predation on burrowing owls in the project area and vicinity. Additionally, garbage, road-killed animals, and water from increased human presence could attract raptors and other predators of burrowing owl such as coyotes and feral dogs.

Indirect effects could also result from potential introduction of invasive plants or from increased incidence of accidental wildfires (caused by equipment or downed lines), both of which could reduce adjacent habitat quality for burrowing owl. Potential deposition of sediment loads during heavy rain events and flooding could potentially affect burrows in the project area.

Potential direct and indirect impacts to burrowing owl would be avoided and minimized through implementation of the general measures identified in Table 4.2-2. In addition, the avian-specific measures contained in Table 4.3-3 would be implemented, and would provide broad protections for all avian species. Finally, the Applicant would comply with Avian Power Line Interaction Committee (APLIC 2012) guidelines for preventing avian electrocutions and collisions with overhead power lines to avoid and minimize impacts to burrowing owl and other avian species.

Other Raptors and Migratory Birds

Potential direct impacts to other raptor species and migratory birds protected by the MBTA include removal of nesting and/or foraging habitat during construction of the proposed project. Alternative 4 would result in approximately 7.2 acres of permanent direct impacts and approximately 126 acres of temporary direct impacts to suitable raptor and migratory bird habitat (Table 4.2-1). Direct impacts to suitable raptor and migratory bird habitat would be greatest under this alternative relative to the other action alternatives analyzed herein. The degree of impact on individual raptor and migratory bird species would vary depending on species-specific behaviors in the project area and habitat requirements. Potential impacts to raptor and migratory bird nest sites would be more detrimental relative to impacts to foraging habitat for such species. Direct impacts to tree or cliff raptor nest sites are not expected given that these features are generally absent from the project area; however, nest sites for ground-nesting raptors may be directly impacted during construction of Alternative 4.

Potential direct impacts to other raptor species and migratory birds also include potential injury or mortality. Injury or mortality may occur during construction if individuals are struck by equipment or vehicles. Injury or mortality to avian species resulting from construction most frequently occurs during vegetation management and involves eggs, nestlings, and recently fledged young that cannot safely avoid equipment. Injury or mortality may also result from collisions or electrocution with overhead transmission wires. Avian power line collisions are a widespread problem with potentially significant local impacts when high-risk conditions are present (CEC 2002). The level of risk depends on a combination of biological and physical factors, such as weather, design and placement of transmission structures, and species-specific behavior.

Potential indirect impacts to raptors and migratory birds include increased noise levels, human use and the potential for long-term unauthorized trespass, erosion, sedimentation, storm water contaminant runoff, and risk of fire, as well as the potential introduction and proliferation of invasive nonnative plant species. These indirect impacts have the potential to degrade raptor and migratory bird habitat and alter breeding, foraging, and migratory behaviors.

Potential direct and indirect impacts to other raptors and migratory birds would be avoided and minimized through implementation of the general measures identified in Table 4.2-2. In addition, the avian-specific measures contained in Table 4.3-3 would be implemented, and would provide broad protections for all avian species. Finally, the Applicant would comply with Avian Power Line Interaction Committee (APLIC 2012) guidelines for preventing avian electrocutions and collisions with overhead power lines to avoid and minimize impacts to raptors and migratory birds.

American Badger

Construction activities associated with Alternative 4 would result in permanent and temporary direct impacts to suitable American badger habitat. The entire project area was determined to support suitable American badger habitat; therefore, it is assumed that all areas impacted by Alternative 4 support suitable badger habitat. Alternative 4 would result in approximately 7.2 acres of permanent direct impacts and approximately 126 acres of temporary direct impacts to suitable American badger habitat (Table 4.2-1). Direct impacts to suitable American badger habitat would be greatest under this alternative relative to other action alternatives analyzed herein.

An American badger was observed in a burrow west of SR-14 in 2011, and three dens were observed in the project area and immediate vicinity. Potential direct impacts during construction, operation, and decommissioning of each gen-tie line alignment alternative may include disturbance, injury, or mortality of American badger individuals. Disturbance, injury, or mortality may result from individuals becoming trapped within open trenches, individuals being

crushed or buried in their burrows/dens, noise and/or vibration from heavy equipment, increased human presence/activity, vehicle strikes, and encounters with pets belonging to visitors.

Indirect effects to American badger could result from potential introduction of invasive plants or from increased incidence of accidental wildfires (caused by equipment or downed lines), both of which could reduce habitat quality for American badger. Potential deposition of sediment loads during heavy rain events and flooding could potentially affect existing burrows/dens in the project area.

Potential direct and indirect impacts to American badger would be avoided and minimized through implementation of the general measures identified in Table 4.2-2.

Wildlife Corridors

The project area does not lie within a wildlife connectivity area as identified by the California Essential Habitat Connectivity Project (Spencer et al. 2010). However, at the local level, wildlife species are likely to use the project area and surrounding large expanses of open habitat for movement related to dispersal and home range activities. In addition, the proposed project is located within the Pacific Flyway, a major north/south migration route for birds that travel between North and South America.

Construction of Alternative 4 would not result in the permanent or temporary installation of structures that would prevent wildlife (including terrestrial and avian) movement through the project area. In addition, use of the service road during construction, operation, and decommissioning of Alternative 4 would be low and would not prohibit terrestrial wildlife movement between large patches of habitat. Therefore, direct impacts to wildlife corridors resulting from Alternative 4 are not expected.

Indirect impacts to wildlife movement (including terrestrial and avian) may result during construction, operation, and decommissioning of Alternative 4 from increased human presence, noise, and edge effects associated with development. These indirect impacts may result in avoidance of the project area, and may have harmful effects on individuals. These impacts may vary depending on the population structure, size of the home range, migration patterns, and dispersal movements of the species being considered, as well as the species' behavioral response to noise, degraded surrounding habitat, and other anthropogenic influences. Indirect impacts to wildlife movement following construction would be minimal given that human presence and activity during operation and maintenance of Alternative 4 would be minimal and infrequent.

Potential indirect impacts to wildlife movement would be avoided and minimized through implementation of the general measures identified in Table 4.2-2.

Residual Impacts after Mitigation

Residual impacts to wildlife resources (including special-status wildlife species and wildlife corridors) after mitigation would be similar to those described for each resource above. The potential for these impacts to occur would be avoided and/or minimized through implementation of measures outlined in Table 4.2-2 (General Measures), Table 4.3-1 (Desert Tortoise Measures), and Table 4.3-2 (Mohave Ground Squirrel Measures). In addition, impacts to avian species (including migratory birds, burrowing owl, and other raptor species) would be avoided and minimized through compliance with Avian Power Line Interaction Committee (APLIC 2012) guidelines, and implementation of the avian protection measures contained in Table 4.3.3. Permanent and temporary impacts to suitable habitat for federally and State-listed species would be mitigated by acquiring and conserving off-site habitat in accordance with incidental take permit conditions under the Federal ESA and the CESA. Thus, although suitable habitat for federally and State-listed species would be impacted with implementation of Alternative 4, the impacts would be offset with acquisition and conservation of suitable habitat in the region. Also, direct impacts to individuals of special-status wildlife species are not expected to compromise the recovery of such species given that few individuals would potentially be impacted.

4.4 Climate Change

4.4.1 *Alternative 1 (No Action Alternative)*

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. As a result, none of the GHG emissions from the construction and operation of the proposed gen-tie on Federal lands managed by the BLM would occur. However, the gen-tie for the solar facility would likely be built on private land, so similar GHG impacts could still occur.

Because of their location within a designated utility corridor, the Federal lands managed by the BLM on which the alternative gen-tie lines are proposed would become available to other uses that are consistent with BLM's land use plan, including gen-tie lines for other solar projects.

4.4.2 *Alternatives 2, 3, and 4*

Direct and Indirect Impacts

The methodology to assess impacts to climate change under NEPA continues to evolve as consensus forms as to how best to evaluate such effects at project-specific and cumulative levels. The CEQ published draft guidance on February 18, 2010 (CEQ 2010) for Federal agencies to improve their consideration of the effects of GHG emissions and climate change in their evaluation of proposals for Federal actions under NEPA. This direction proposed that agencies consider the direct and indirect GHG emissions from the action, and quantify and disclose those emissions in the environmental document (40 CFR 1508.25). The CEQ further proposed that agencies consider mitigation measures to reduce project-related GHG emissions from all phases and elements of a project and alternatives over their expected life, subject to reasonable limits based on feasibility and practicality.

The CEQ proposed that if a project would be reasonably anticipated to cause direct emissions of 25,000 metric tons or more of CO₂e GHG emissions on an annual basis, agencies should consider this an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public. Although the guidance remains in draft form, this indicator of 25,000 metric tons or more of CO₂e GHG emissions on an annual basis can still serve as a useful benchmark against which to compare a project's expected GHG emissions.

An analysis was performed to calculate the GHG emissions associated with the Alternative 3 alignment (Rincon Consultants 2014) (see Appendix D), which was the alignment originally envisioned by the Applicant during initial project development. The analysis combined the construction and operational GHG emissions for the private lands solar facility and the proposed gen-tie line. The analysis considered direct GHG emissions from vehicle and equipment exhaust and indirect GHG emissions resulting from water delivery and use. GHG emissions during construction of the private lands solar facility and the Alternative 3 gen-tie line combined were estimated to be 2,426 metric tons of CO₂e. Operational GHG emissions were estimated to be 1,134 metric tons of CO₂e, for a total GHG emissions quantity of 3,560 metric tons CO₂e. This total includes GHG emissions for construction and operation of both the private lands solar facility and the gen-tie line.

Most of the above combined quantity of GHG emissions would derive from construction and operation of the solar facility, not the gen-tie line, and construction and operation of the gen-tie alone would be but a fraction of the overall 3,560 metric tons CO₂e emissions quantity. When considering the GHG emissions of the Alternative 2 and 4 alignments as compared to the Alternative 3 alignment that was analyzed in detail as described above, the Alternative 2 alignment's share of GHG emissions would be very similar, based on the fact that the two alignments are nearly identical in length (2 miles for Alternative 2 and 1.9 miles for Alternative 3). Alternative 4's emissions would be slightly greater, based on the greater length of the

Alternative 4 alignment when compared to Alternative 3 (3.5 miles versus 1.9 miles, respectively). This difference, however, would be negligible for GHG emissions.

Regardless of the gen-tie alternative used, the GHG emissions associated with gen-tie construction and operation would be well below the CEQ indicator of 25,000 metric tons of CO₂e per year.

Agencies under the Department of the Interior are required to consider potential impact areas associated with climate change, including potential changes in flood risk, water supply, sea level rise, wildlife habitat and migratory patterns, invasion of exotic species, and potential increases in wildfires. The extremely low GHG emissions associated with development of the gen-tie line would result in no effects to any of these categories of potential impact.

Because the climate change impacts of the gen-tie alternatives are minimal, no mitigation would be necessary to specifically reduce GHG emissions associated with development of the gen-tie line.

4.5 Cultural and Historic Resources

4.5.1 *Alternative 1 (No Action Alternative)*

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. As a result, no cultural resources effects from construction and operation of the proposed gen-tie on Federal lands managed by the BLM would occur. However, the gen-tie for the solar facility would likely be built on private land, so similar effects could still occur.

Because of their location within a designated utility corridor, the Federal lands managed by the BLM on which the gen-tie lines are proposed would become available to other uses that are consistent with BLM's land use plan, including gen-tie lines for other solar projects.

4.5.2 *Alternative 2*

Direct and Indirect Impacts

The cultural resources investigations identified five archaeological sites and 13 isolated finds within the Alternative 2 APE. Of these 18 resources, 17 were newly identified and one was

previously recorded. Of the five archaeological sites, two are historic and three are prehistoric. Based on the results of the field survey and research, none of the archaeological sites located within the Alternative 2 APE meet the eligibility criteria for inclusion in the NRHP. The isolated finds are, by definition, not sites, and are not eligible for inclusion in the NRHP. Because none of the identified resources are NRHP-eligible, they are not historic properties under Section 106 of the NHPA. As such, there would be no adverse effect to such properties as a result of implementation of Alternative 2

Table 4.5-1 summarizes the findings and resource eligibility recommendations for each of the five archaeological sites within the Alternative 2 APE. Table 4.5-1 also lists the potential effect to these resources as a result of implementation of Alternative 2. This data is presented in detail in the Cultural Resources Class III Survey Report (confidential Appendix E).

Table 4.5-1. Summary of Potential Effects to Identified Archaeological Sites in Alternative 2				
Site	Age	Description	NRHP Eligibility Recommendation	Potential Effects
P-15-007766	Historic	Refuse disposal scatter and prehistoric isolate	Not eligible	No effect
CS-S-H-012	Historic	Refuse disposal scatter	Not eligible	No effect
CS-S-P-010	Prehistoric	Lithic scatter	Not eligible	No effect
CS-S-P-011	Prehistoric	Lithic scatter	Not eligible	No effect
CS-S-P-013	Prehistoric	Lithic scatter	Not eligible	No effect

4.5.3 *Alternative 3*

Direct and Indirect Impacts

The cultural resources investigation identified three archaeological sites and seven isolated finds within Alternative 3, all of which were newly identified resources. Of the three archaeological sites, two are historic and one is prehistoric. Based on the results of the field survey and research, none of the archaeological sites located within Alternative 3 meet the eligibility criteria for inclusion in the NRHP. The isolated finds are, by definition, not sites, and are not eligible for inclusion in the NRHP. Because none of the identified resources are NRHP-eligible, they are not historic properties under Section 106 of the NHPA. As such, there would be no adverse effect to such properties as a result of implementation of Alternative 3.

Table 4.5-2 summarizes the findings and resource eligibility recommendations for each of the archaeological sites within Alternative 3. Table 4.5-2 also lists the potential effect to these resources as a result of implementation of Alternative 3. This data is presented in detail in the Cultural Resources Class III Survey Report (confidential Appendix E).

Table 4.5-2. Summary of Potential Effects to Identified Archaeological Sites in Alternative 3				
Site	Age	Description	NRHP Eligibility Recommendation	Potential Effects
CS-S-H-016	Historic	Refuse disposal scatter	Not eligible	No effect
CS-S-H-017	Historic	Refuse disposal scatter	Not eligible	No effect
CS-S-P-015	Prehistoric	Lithic scatter	Not eligible	No effect

4.5.4 *Alternative 4*

Direct and Indirect Impacts

The cultural resources investigations identified two archaeological sites and three isolated finds within Alternative 4. Of these five resources, four were newly identified and one was previously recorded. Both archaeological sites are historic in age. Based on the results of the field survey and research, none of the archaeological sites located within Alternative 4 meet the eligibility criteria for inclusion in the NRHP. The isolated finds are, by definition, not sites, and are not eligible for inclusion in the NRHP. Because none of the identified resources are NRHP-eligible, they are not historic properties under Section 106 of the NHPA. As such, there would be no adverse effect to such properties as a result of implementation of Alternative 4.

Table 4.5-3 summarizes the findings and resource eligibility recommendations for each of the archaeological sites within Alternative 4. Table 4.5-3 also lists the potential effect to these resources as a result of implementation of Alternative 4. This data is presented in detail in the Survey Results for the All-Private Gen-Tie Alternative for the RE Cinco Project (AECOM 2014d, confidential Appendix E).

Table 4.5-3. Summary of Potential Effects to Identified Archaeological Sites in Alternative 4				
Site	Age	Description	NRHP Eligibility Recommendation	Potential Effects
P-15-016275	Historic	Refuse disposal scatter	Not eligible	No effect
CS-S-H-017	Historic	Refuse disposal scatter	Not eligible	No effect

4.6 **Energy Resources**

4.6.1 *Alternative 1 (No Action Alternative)*

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. As a result, no energy resources effects from construction and operation of the proposed alternative gen-tie lines on Federal lands managed by the BLM would occur. However, the gen-tie for the solar facility would likely be built on private land, so similar effects could still occur.

Because of their location within a designated utility corridor, the Federal lands managed by the BLM on which the alternative gen-tie lines are proposed would become available to other uses that are consistent with BLM's land use plan, including gen-tie lines for other solar projects.

4.6.2 Alternatives 2, 3, and 4

Direct and Indirect Impacts

Each of the alternative gen-tie alignments would facilitate the transmission of solar-generated electricity to the Barren Ridge Switching Station and then on to the electric grid. As discussed previously in Section 3.22.2, the area through which each of the alternatives on BLM-managed land would pass is part of a designated energy corridor. The corridor was established, in part, to expedite applications to construct or modify electricity transmission and distribution facilities within such corridors. As such, the gen-tie would be consistent with the adopted resource management plan for the area, and would also be consistent with adopted goals and policies associated with the increased production and transmission of renewable energy resources.

There are a number of existing and approved ROWs on the BLM lands in the vicinity of the action alternative gen-tie routes, all of which are associated with transmission lines interconnecting with the Barren Ridge Switching Station within BLM-designated Energy Corridor 23-106. The project Applicant coordinated with the operators of these facilities and prepared a Utility Corridor Conflict Analysis to determine if the alternative gen-tie alignments would encroach upon the existing rights of the adjacent operators, the potential impact to the continued functionality of the utility corridor, and the remaining capacity for the future. The principal findings of the Utility Corridor Conflict Analysis are summarized below.

For Alternative 2, the Applicant incorporated the planned LADWP BR RTP's 230-kV transmission line into the gen-tie design. LADWP will occupy a 200-foot-wide ROW and the Cinco gen-tie would occupy an adjacent 150-foot-wide ROW. Assuming that each transmission line would be located along the centerline of their respective ROW, the distance between the two centerlines would be a minimum of 175 feet. Alternatives 3 and 4 have identified identical setbacks of 175 feet from this planned line, where appropriate, just south of the Barren Ridge Switching Station. None of the action alternatives would cross or conflict with the anticipated future LADWP transmission line.

There was a previously contemplated solar project to be built by Celtic Energy, located south of the RE Cinco solar project site. It is understood that this project has a pending application with the BLM for a ROW through Utility Corridor 23-106. This project is not currently in the LADWP interconnection queue for use of the LADWP Barren Ridge Switching Station, nor does the switching station have current or future capacity for another generator interconnection on the southern side for the duration of the long-term planning horizon. The Celtic Energy project would, therefore, be required to interconnect elsewhere, should it ultimately be developed. Therefore, none of the contemplated alternatives would result in a conflict to the Celtic Energy project within Utility Corridor 23-106.

Existing and planned LADWP transmission lines occupy 4.3% percent of the total width of the 2-mile-wide Federal utility corridor in the project area. At 150 feet wide, Alternative 2 would occupy only 1.4% of the total width of the 2-mile-wide Section 368 Utility Corridor 23-106. In combination with other ROWs within Utility Corridor 23-106, the combined transmission facilities would allow for the remaining 94.3% of the corridor's 2-mile width to be undeveloped and available for other uses, should they exist in the future.

Because of its oblique angle at its southern end, Alternative 3 would occupy 43% of the 2-mile width of Utility Corridor 23-106, which would restrict the number of future uses within the corridor.

None of the action alternatives would cross over or inhibit the operation of the future LADWP BR RTP's 230-kV transmission line. Of the action alternatives, Alternative 2 would have the least impact on the corridor, leaving room for future transmission lines east of the proposed route within the corridor; the impact on the corridor would be incremental and small. Shared use of existing LADWP access roads under Alternative 2 would also lessen the overall operational footprint within the corridor than would otherwise be the case if the access road use were not shared. Alternative 3 would construct a gen-tie line and a separate and single-user access road obliquely across a wide portion of the corridor, necessitating future transmission lines to potentially build under or over this alternative in the portion of the corridor between the LADWP transmission lines and across SR-14. Alternative 4 would be constructed entirely on private land and would have no impact on Utility Corridor 23-106.

4.7 Fire and Fuels

4.7.1 *Alternative 1 (No Action Alternative)*

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. As a result, no fire and fuels effects from construction and operation of the proposed alternative gen-ties on Federal lands managed by the BLM would occur. However, the gen-tie for the solar facility would likely be built on private land, so similar effects could still occur.

Because of their location within a designated utility corridor, the Federal lands managed by the BLM on which the alternative gen-tie lines are proposed would become available to other uses that are consistent with BLM's land use plan, including gen-tie lines for other solar projects.

4.7.2 Alternatives 2, 3, and 4

Direct and Indirect Impacts

Perennial vegetation in the project area is sparse and widely spaced, which, under current conditions, generally serves to limit the amount of permanent fuel available to wildfires. Trees are absent from the project area, and vegetation is restricted to shrubs and small perennial plants. Distribution of invasive species such as Saharan mustard is currently limited to a few small areas near SR-14. Fires in and around the project area are currently infrequent and are typically of limited extent. However, increases in the distribution of Saharan mustard and other invasive plant species probably present the greatest risk with respect to increased frequency and intensity of wildfire. Once established, these plants can seasonally increase fire risk by adding flashy fuels that can serve to carry fire over greater distances. Unless properly managed, the spread of these species can be increased by ground disturbance and other human-caused factors.

During construction, activities would be implemented to minimize distribution of invasive plants. These efforts are described in Section 2.5.3. During operation, invasive species and other weeds would be managed through manual, non-mechanical and chemical controls. These efforts are described in Section 2.5.4. These activities would serve to limit the increased distribution of invasive plants and weeds that could more effectively carry fire. Safety and emergency management plans and programs would also be established, which are also described in Section 2.5.4. These activities would prescribe methods by which fire risk could be minimized, and would also prescribe actions to be taken in the event of fire. Based on each of these factors, no adverse effects with respect to fire and fuels would occur under any of the action alternatives.

4.8 Grazing Allotments

4.8.1 Alternative 1 (No Action Alternative)

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via an alternative means that does not involve BLM-managed land or issuance of a separate ROW

authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. The Hansen Common Allotment would continue to be managed as it is currently, in accordance with BLM plan and policy parameters. Accordingly, there would be no direct impact to existing grazing activities on BLM lands within the project area. However, the gen-tie for the solar facility would likely be built on private land, so similar impacts to grazing on private lands used by permittees of the Hansen Common Allotment could still occur.

In addition, and because of their location within a designated utility corridor, the Federal lands managed by the BLM on which the alternative gen-tie lines are proposed would become available to other uses that are consistent with BLM's land use plan, including gen-tie lines for other solar projects. Therefore, impacts to grazing lands associated with Alternative 1 could actually be very similar to those associated with Alternatives 2, 3, or 4.

These impacts, however, would be negligible. Loss of ephemeral grazing lands resulting from construction of similar gen-ties on public or private lands would be limited to the permanent physical footprints of the associated gen-tie structures and service roads.

4.8.2 Alternatives 2, 3, and 4

Direct and Indirect Impacts

Impacts to public lands grazing allotments from implementation of any of the action alternatives would be limited to the loss of ephemeral grazing lands. The amount of forage that would be lost would be limited to the permanent physical footprints of the associated gen-tie structures and service roads. The permanent impact acreage associated with the alternatives are 2.51 acres for Alternative 2, Option A, or 3.23 acres for Alternative 2, Options B and C, depending on which option is chosen; 3.23 acre for Alternative 3; and 8.8 acres for Alternative 4 (the impact area for the Alternative 4 segments lying east of SR-14 are outside of the Hansen Common Allotment). When compared to the overall size of the Hansen Common Allotment (72,102 acres), this amount of lost ephemeral forage would be negligible. No reductions in permitted grazing would be anticipated under any of these scenarios. Additionally, this small impact to grazing would only potentially impact ephemeral sheep grazing, since the cattle grazing portion of the allotment would be unaffected.

4.9 Hazardous and Solid Wastes

4.9.1 Alternative 1 (No Action Alternative)

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar

facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. As a result, none of the potential hazardous materials impacts associated with the construction and operation of the proposed alternative gen-ties on Federal lands managed by the BLM would occur. However, the gen-tie for the solar facility would likely be built on private land, so similar impacts could still occur on private lands.

Because of their location within a designated utility corridor, the Federal lands managed by the BLM on which the alternative gen-tie lines are proposed would become available to other uses that are consistent with BLM's land use plan, including gen-tie lines for other solar projects.

4.9.2 Alternatives 2, 3, and 4

Direct and Indirect Impacts

The proposed project is not expected to result in impacts from hazardous materials with respect to creating an impact to the public or the environment through the routine transport, use, or disposal of hazardous materials. This is because, with the exception of herbicide use as described in Section 2.5.4 and analyzed below, the proposed project would not involve the routine transport, use, or disposal of hazardous materials as defined by the Hazardous Materials Transportation Uniform Safety Act. During construction, the proposed project would include the transport of general construction materials (e.g., concrete, wood, metal, vehicle fuel). Project-related infrastructure would not emit hazardous materials or be constructed of acutely hazardous materials or substances that could adversely impact the public or on-site workers. No hazardous wastes would be generated on-site due to the project.

Wastes generated during construction of the proposed project would also be non-hazardous, and would consist of copper wire, scrap steel, wood, common trash, and wire spools. Although field equipment used during construction activities could contain various hazardous materials (e.g., hydraulic oil, diesel fuel, grease, lubricants, solvents, adhesives, paints), these materials are not considered to be acutely hazardous and would be used in accordance with the manufacturers' specifications and all applicable regulations. In addition, hazardous fuels and lubricants used on field equipment would be subject to a Material Disposal and Solid Waste Management Plan, and a Hazardous Materials Spill Response Plan, as described in Section 2.5.4.

BLM approved dust palliatives would be used during construction to manage fugitive dust. The primary environmental concern with dust palliatives is how they could impact water quality, freshwater aquatic environments, and native plants and wildlife. If improperly applied,

palliatives can migrate into water bodies with resultant negative effects. Although the arid nature of the project area would limit the effects of improper application on groundwater and aquatic environments, runoff of palliatives could occur if they were applied improperly prior to a significant rainfall event. However, these effects can be avoided if safety precautions are implemented and manufacturer’s instructions are followed when handling, mixing, and applying dust palliatives. These precautions would be primarily directed toward excess application of palliatives or application of palliatives outside of areas for which they are intended. Mitigation would be employed to implement these precautions during construction (Table 4.9-1).

Table 4.9.1. Dust Palliative Use Impact Minimization Measures		
Measure Acronym	Measure Description	Timing
HAZ-1	Information concerning dust palliatives applied at the site will be kept at the project site during construction. This information may include product literature, Material Safety Data Sheets, and manufacturer’s instructions. Persons applying the palliatives must be familiar with this information and must comply with the instructions contained therein.	Pre-construction, construction, operations and maintenance (O&M), decommissioning
HAZ-2	A person familiar with all of the instructions and requirements concerning the application of palliatives will be appointed to oversee all palliative applications, and will direct the application thereof. Particular attention will be paid to ensuring that palliatives are applied only in the quantities necessary to accomplish the desired dust reduction, and will not be applied in quantities that would result in pooling. Attention will also be paid to ensuring that application of palliatives is limited only to those areas where they are required. A log will be kept of all palliative applications, and this log will be maintained on-site with the aforementioned product information materials.	Pre-construction, construction, O&M, decommissioning

Residual Impacts

Implementation of the above mitigation measure would effectively mitigate any effects from palliative use. No residual effects would remain.

4.9.3 Supplemental Analysis for Herbicide Use

Alternatives 1 and 4

Alternatives 1 and 4 do not required analysis of herbicide use for BLM approval. Under Alternative 1, the issuance of a ROW grant would not occur and the gen-tie would not be constructed on BLM lands. As a result, no herbicides would be used on BLM managed lands and the BLM would not need to authorize their use.

Under Alternative 4, the gen-tie would be constructed on private lands over which the BLM has no jurisdiction. Accordingly, the BLM would have no authority over the use of herbicides. on private lands Therefore, this supplemental analysis for herbicide use is for Alternatives 2 and 3 only.

Alternatives 2 and 3

During operation of either the Alternative 2 or Alternative 3 gen-tie, invasive weeds would be managed through the use of herbicides, as per the weed management approach described in Section 2.5.4. If required, a more detailed Weed Control Plan would be prepared, approved by the BLM prior to implementation.

Under Alternatives 2 and 3, the herbicides used would be approved for their specific purposes, and would be transported, handled, stored, and applied in accordance with applicable regulations and the standard operating procedures (SOPs) contained in BLM’s 2007 Vegetation Treatment PEIS for vegetation management using herbicides.

Table 4.9-2 identifies specific resource areas that could have potential adverse impacts as a result of herbicide use for invasive-weed management. The table includes a rationale as to why a resource area was included or excluded from hazardous materials impact analysis related to herbicide use. Resource areas identified for further analysis are analyzed for each alternative following the table. The herbicide analysis is tiered to the BLM’s 2007 Vegetation Treatment PEIS for vegetation management using herbicides.

Table 4.9-2. Potential Impacts of Herbicide Use by Resource Area		
Resource/Concern	Analyzed in Detail Below?	Rationale for Analysis or Dismissal from Analysis
Air Quality	No	<p>Only herbicides discussed in the Vegetation Treatment Programmatic Environmental Impact Statement (PEIS) (BLM 2007) would be used. The Vegetation Treatment PEIS Record of Decision (ROD) identified standard operating procedures (SOPs) for air quality. In addition, the PEIS (Appendix B, Table B-2) identifies SOPs for air quality (p. B-10).</p> <p>Non-regulated herbicides would not be used. Any herbicide application would occur in compliance with Environmental Protection Agency label instructions. Application of herbicides would be suspended when wind velocity exceeds 6 miles per hour during application of liquids or 15 miles per hour during application of granular herbicides.</p>
Biological Resources – Vegetation	Yes	<p>The project-specific Biological Assessment (AECOM 2013) concluded that no threatened and endangered (T&E) plant species were on-site. Previous grading within the project area would have eliminated habitat for special-status plants. However, vegetation recovery may occur within temporarily impacted areas along the transmission line corridor.</p> <p>A weed management approach was prepared in compliance with the Vegetation Treatment PEIS and includes measures to avoid chemical drift and residual toxicity. The purpose of the Weed Control Plan is to control invasive plant species that may affect native vegetation.</p> <p>The Vegetation Treatment PEIS evaluated the potential</p>

Table 4.9-2. Potential Impacts of Herbicide Use by Resource Area		
Resource/Concern	Analyzed in Detail Below?	Rationale for Analysis or Dismissal from Analysis
		<p>adverse effects of herbicide use on vegetation, special-status species, and T&E species. Mitigation measures were identified in the Vegetation Treatment PEIS ROD (p. 2-4).</p> <p>Appendix B, Table B-2 identifies SOPs for vegetation (p. B-10); they are applicable to re-vegetation sites and to domestic horses, pack animals, and livestock.</p> <p>The project would include the use of herbicides to prevent the introduction of new weeds and spread of existing weeds because of project construction, operation, and decommissioning.</p> <p>The Vegetation Treatment PEIS analyzed the use of herbicides on Bureau of Land Management (BLM) administered land to control invasive species. Mitigation measures, SOPs, and prevention measures from the Vegetation Treatment PEIS are contained in the Vegetation Treatment PEIS ROD (Table 2) and Appendix B (Table B-2), respectively. Applicable measures would be implemented as appropriate when applying herbicide within the project area.</p>
Biological Resources – Wildlife	Yes	<p>Previous grading within the project area would eliminate habitat for special-status animals. Biological monitoring on-site would identify special-status species, if present, and identify actions for avoidance. The federally listed desert tortoise occurs within the project area.</p> <p>A Biological Assessment was prepared for the project (AECOM 2013) that contains impact avoidance, minimization, and mitigation measures, as well as resource-specific measures and general and construction measures. These measures include use of herbicides for weed management. Mitigation measures were identified in the Vegetation Treatment PEIS ROD (p. 2-4 through 2-5). Appendix B, Table B-2 (p. B-11) identifies SOPs for wildlife and T&E and sensitive species.</p>
Climate Change	No	<p>The extremely low greenhouse gas (GHG) emissions associated with development of the gen-tie line would not result in direct emissions of 25,000 metric tons or more of carbon-dioxide-equivalent on an annual basis. Because the climate change impacts of all of the gen-tie alternatives are minimal, no mitigation would be necessary to specifically reduce GHG emissions associated with the use of herbicide.</p>
Cultural Resources	No	<p>A cultural resources analysis was prepared for the project, and mitigation measures were developed that require data recovery at eligible sites prior to construction-related ground disturbance activities.</p> <p>Mitigation measures were also identified (p. 2-5) in the Vegetation Treatment PEIS ROD. Appendix B, Table B-2 identifies SOPs for cultural resources (p. B-12); applicable measures would be implemented.</p>

Table 4.9-2. Potential Impacts of Herbicide Use by Resource Area		
Resource/Concern	Analyzed in Detail Below?	Rationale for Analysis or Dismissal from Analysis
Energy Resources	No	Herbicide use allows an effective method of weed control at energy facilities to allow the transmission of renewable energy supplies. The Vegetation Treatment PEIS contains mitigation measures and SOPs to ensure the proper chemicals, methods, rates, and treatment are used. This project would comply with these applicable requirements.
Grazing Allotments	No	The Vegetation Treatment PEIS analyzed grazing benefits and impacts associated with the application of herbicides (pgs. 4-124 through 4-146). The PEIS contains SOPs (pg.4-124) and mitigation measures (pg. 4-146) to reduce potential impacts to livestock and other animals (see Biological Resources – Wildlife, above, for discussion of special-status animals). Applicable SOPs and Mitigation Measures would be implemented.
Lands and Realty	No	The 2009 ROD prepared for the Federal west-wide energy corridors concludes that the Corridor 23-106 designation within the project area was consistent with the California Desert Conservation Area (CDCA) Plan. The project is also consistent with the CDCA Plan projects sited on Class L lands that satisfy the Multiple Use Class Guidelines. The use of herbicide would not have an adverse effect of lands and realty, and would not change the analysis.
Noise and Vibration	No	The closest sensitive receptor to the project area is approximately 2 miles away. Noise and vibration impacts from herbicide application would be limited to noise generated from vehicles carrying workers and/or applying the chemicals. These noise and vibration impacts would be negligible, and would not affect sensitive receptors.
Paleontological Resources	No	The Vegetation Treatment PEIS analyzed potential paleontological resource impacts associated with the application of herbicides (pg. 4-148). Mitigation measures were identified in the Vegetation Treatment PEIS (pgs. 2-42 and 4-152), and the PEIS identified SOPs for paleontological resources. Impacts to paleontological resources would not be expected as a result of herbicide application because no ground disturbance or subsurface disturbance would occur, and no impacts would occur outside of areas already impacted and mitigated for by the project. Application of herbicides would not result in any impacts to paleontological resources.
Public Health and Safety	No	The Vegetation Treatment PEIS identified SOPs for human health and safety (Appendix B, pg. B-14). Herbicide application would be applied consistent with applicable SOPs and appropriate State and local regulations. All herbicide application would be conducted under the direct supervision of a licensed applicator.
Recreation	No	The project area is not part of a BLM-designated recreation area; however, off-highway-vehicle riding, primitive camping, hiking, hunting, and other outdoor pursuits could

Table 4.9-2. Potential Impacts of Herbicide Use by Resource Area		
Resource/Concern	Analyzed in Detail Below?	Rationale for Analysis or Dismissal from Analysis
		<p>occur.</p> <p>The Vegetation Treatment PEIS provided analysis of potential recreational impacts associated with the application of herbicides (pgs. 4-159 through 4-163). Applications would be localized and would occur in compliance with the applicable SOPs defined in the Vegetation Treatment ROD (Appendix B, Table 2; p. 2-5). Mitigation measures are also identified in the Vegetation Treatment PEIS (pgs. 2-42 and 4-164).</p>
Socioeconomics and Environmental Justice	No	<p>The closest residence is approximately 2 miles from the nearest portion of the alternatives alignments. The local population has also been given an opportunity to review and comment on the project during the prior CEQA process, and is also provided the opportunity to review and comment on the project during the NEPA process.</p> <p>Given the selection of a non-regulated herbicide, the targeted application of herbicides directly on specific plants (no broadcast treatment), the low expected frequency of application, and the implementation of SOPs and measures to minimize risk to public health and safety (see above), no adverse effects are anticipated.</p> <p>In addition, the project would be constructed in accordance with all Federal, State, and local plans and policies associated with utilities, thereby reducing potential adverse effects.</p>
Topography, Geology, and Soils	No	No mitigation measures were identified in the Vegetation Treatment PEIS ROD. Appendix B, Table B-2 (p. B-10) identifies SOPs for soils.
Transportation and Public Access	No	<p>The Vegetation Treatment PEIS analyzed exhaust emissions from transportation vehicles (pgs. 4-6 through 4-8). SOPs for emissions are contained in Appendix B.</p> <p>The Vegetation Treatment PEIS also analyzed impacts of application of herbicides on public access. SOPs were prepared (pg. 4-164), and applicable measures would be implemented when applying herbicide within the project area.</p>
Visual Resources	No	The Vegetation Treatment PEIS analyzed the visual impact from the use of herbicide application on BLM-administered lands. Mitigation measures, SOPs, and prevention measures from the Vegetation Treatment PEIS are contained in the Vegetation Treatment PEIS ROD (Table 2) and Appendix B (Table B-2). Applicable measures would be implemented when applying herbicide within the project area.
Water Resources	No	<p>There are no permanent bodies of water located on the project site, only an ephemeral dry wash. No aquatic or riparian vegetation will be impacted within BLM lands.</p> <p>Pine Tree Canyon Wash is on-site, but is considered a “geographically isolated” aquatic feature, and, thus, a non-</p>

Table 4.9-2. Potential Impacts of Herbicide Use by Resource Area		
Resource/Concern	Analyzed in Detail Below?	Rationale for Analysis or Dismissal from Analysis
		<p>jurisdictional waters of the U.S. by the U.S. Army Corps of Engineers (USACE). However, the wash is considered jurisdictional waters of the State under the regulatory administration of the California Department of Fish and Wildlife and the Lahontan Regional Water Quality Control Board.</p> <p>Mitigation measures were identified in the Vegetation Treatment PEIS ROD (p. 2-4). Appendix B, Table B-2 (p. B-10) of the Vegetation Treatment PEIS identifies SOPs for water resources, and applicable measures would be implemented. Appendix B, Table B-2 (p. B-10) identifies SOPs for wetlands/riparian zones.</p> <p>No other wetlands or other water resources under the jurisdiction of USACE are present within the project area.</p> <p>Pine Tree Canyon Wash located on-site is a designated Flood Zone "A" by the Federal Emergency Management Agency, and would be crossed by all of the alternative gen-tie alignments. The remainder of the gen-tie is within a moderate flood hazard area Zone X.</p> <p>No transmission structures or new service road segments would be constructed within the wash. With the lack of disturbance to wash features, the project would not anticipate contributing to increased weed populations, and would not expect to treat with herbicides within drainages; however, should treatment within the drainages need to occur, an herbicide would be selected that is approved for use in aquatic habitats (i.e., AquaMaster, a glyphosate compound).</p>

Source: BLM 2007

Biological Resources – Vegetation

As stated in Section 3.3.1, there are five vegetation classifications within the project area:

- Mojave creosote bush scrub
- Desert saltbush scrub
- Unvegetated ephemeral dry wash
- Southern alluvial fan scrub
- Creosote bush wash scrub

No State or federally threatened or endangered plant species or BLM sensitive species have been identified within the proposed project area.

Alternative 1 (No Action Alternative) and Alternative 4

Under both the No Action Alternative and Alternative 4, no herbicide use would occur on BLM-managed lands, and invasive plants could eventually increase in the adjacent BLM-managed portion of the project area, particularly along traveled roads. Existing or new invasive plant infestations within or adjacent to the project area could spread throughout the area, which would be an adverse effect.

Alternatives 2 and 3

Invasive weeds identified within or outside the project area could become established or increase within the area in the short-term following construction activities that remove native vegetation. However, the weed management approach described above (see Section 2.5.4) identifies techniques for infestation containment and control, including manual, non-mechanical, and chemical removal. These techniques would be effective in controlling noxious and invasive broadleaf weeds.

Another way that new species could be introduced to the area would be from vehicles, heavy equipment, and activities associated with the use of the vehicles and equipment. Preventive measures, such as equipment cleaning, site soil management, using weed-free products, and personnel training would reduce the risk of invasive species establishment.

In addition to the containment, control, and preventive techniques, monitoring and reporting of weed control measures would assess the effectiveness of the weed control approach, and methods could be modified if necessary. The invasive plant control measures are intended to be adaptive, to address new threats as they occur, and to respond to current conditions through time.

The use of herbicides would facilitate the effective control of noxious weeds and other invasive and undesirable species. Chemical treatment of invasive plants as part of an integrated pest management approach (manual non-mechanical, and chemical control) is not expected to have negative effects on special-status plant species. No threatened or endangered plants were identified in the proposed ROWs for either Alternative 2 or Alternative 3.

According to the Vegetation Treatment PEIS (BLM 2007), the potential for negative effects to vegetation from drift of herbicides is low, with a maximum drift distance for proposed active ingredients identified as 1,100 feet for sulfometuron methyl if applied by a low boom (20 inches above the ground). However, this active ingredient and type of broadcast application is not proposed for the project. The Vegetation Treatment PEIS also found that impacts from targeted applications (i.e., backpack sprayers) for the proposed active ingredients (i.e., glyphosate) are expected to have little to no negative effects to off-site vegetation.

Chemicals proposed to control invasive species for the project are BLM-approved herbicides that have been analyzed in the Vegetation Treatment PEIS and Vegetation Treatment Biological Assessment (BA): glyphosate and, potentially, triclopyr. Herbicides that represent the lowest risk

for negative effects to sensitive species present on-site would be prioritized. Herbicide application would also consist of targeted applications of invasive plants within those treatment areas; therefore, only a portion of the total treatment area would be affected by herbicides.

Invasive plant treatment and control would occur ,at minimum, annually, but could occur multiple times annually, as needed and recommended by the project's Pest Control Advisor, to control various invasive plants that may be present during different times of the year. Only adjuvants and herbicides approved by the BLM in California would be used on BLM lands. Herbicides kill or inhibit plant growth and can be very effective in controlling invasive plants. Different invasive plant species may require alternate herbicides, application rates, and time of application. Application of herbicides would involve controlled application and not broadcast treatments. Chemical treatment with herbicides known to have residual toxicity, such as pre-emergents, may be used. To reduce potential indirect impacts associated with herbicide application, only the following application methods are anticipated to be used: wick (wiping onto leaves) and foliar spot spraying with backpack sprayers or pump sprayers at low pressure or with a shield attachment to control drift, and only on days with winds not exceeding miles per hour, or with a squeeze bottle for small infestations. Foliar spot spraying may also occur using a central tank/spray rig with multiple manned hoses/wands for application to individual plants.

The environmental risks of using herbicides would be minimized by using marker dyes in the solution with the herbicide to make the herbicide visible in areas where it has been applied. Marker dyes used would include Turf Marker Blue or an equivalent, and would not have toxic environmental effects independent of the associated herbicides. Higher visibility is desirable because it allows personnel to more effectively protect themselves against contamination; prevents unintended multiple application to a particular area or plant; ensures complete coverage of the target area and plants; and informs personnel of overspray and wind-drift issues, which protects non-target plants.

Implementation of the weed control approach (see Section 2.5.4) would facilitate the control of invasive plant and undesirable species. The project would implement applicable measures from the Vegetation Treatment BA and the SOPs included in the Vegetation Treatment PEIS (Appendix B, Table B-2 of the PEIS), which would minimize or reduce adverse effects to vegetation communities. Therefore, the application of herbicides on BLM lands associated with the project would not negatively affect on-site vegetation communities, including special-status plants, but would have an overall benefit to the habitat structure, improve habitat restoration efforts, and reduce fire risk.

Biological Resources – Wildlife

Wildlife present within the project area is typical of those found in Mojave creosote bush scrub habitat, such as antelope ground squirrel, black-tailed jack rabbit, turkey vulture, common raven, California horned lark, sage sparrow, white-crowned sparrow, and barn swallow. Special-status

species detected within the project area include the Federal- and State-listed desert tortoise, and the State-listed Mohave ground squirrel, western burrowing owl, and American badger. Wildlife is summarized in Section 3.4.

Construction of the project would reduce or eliminate native habitat for wildlife that is present within the areas targeted for invasive plant treatment, with the exception of potential buffer areas or temporarily impacted areas after vegetation recovers and/or restoration is complete. The weed management approach identifies long-term maintenance measures (i.e., manual non-mechanical removal and herbicide application) to control weed species that were removed during construction and to prevent or control weed species that are not yet established but could potentially infest the project area in the future. Implementation of weed control measures, including the use of herbicides, is not expected to have an adverse effect on wildlife per the analysis below.

Alternative 1 (No Action Alternative) and Alternative 4

Under both the No Action Alternative and Alternative 4, no herbicide use would occur on BLM-managed lands, and invasive plants could eventually increase in the adjacent BLM-managed portion of the project area, particularly along traveled roads. Existing or new invasive plant infestations within or adjacent to the project area could spread throughout the area, which would be an adverse effect.

Alternatives 2 and 3

Herbicides would only be applied using targeted methods (i.e., backpack sprayers or a spray rig with a hand held wand method). No broadcast treatment methods would be employed. This targeted application would reduce potential impacts associated with application of herbicides to non-target vegetation and wildlife. Herbicide treatment is proposed for use in areas that have been disturbed by the project and where all vegetation will be maintained long-term within the project area. Since the vegetation would have been removed in herbicide treatment areas, there is a substantially reduced potential for direct adverse effects to native plants and wildlife.

The use of herbicides is an important component of meeting the project's objective to control invasive plants and thereby minimize the potential for indirect adverse effects resulting from the introduction or spread of invasive plant species in the native environment. The most likely effect would be associated with the drift of herbicides into adjacent habitat. To minimize the potential for drift, herbicides will not be applied during winds greater than 6 miles per hour.

Application of herbicide would be by certified operators using low-pressure sprayers at an application rate equal to or less than the manufacturer's recommendation. Standard procedures recommend using the lowest amount of herbicide to effectively treat the target species. In no instance would herbicide use exceed the maximum allowable rate per acre.

The Vegetation Treatment PEIS and BA used Ecological Risk Assessments to evaluate the risk of the effects of herbicide active ingredients to terrestrial wildlife. Field studies suggest that appropriate herbicide use is not likely to have direct toxicological effects on wildlife. The associated risks for herbicides proposed for use on-site are as follows:

- Triclopyr – Low to moderate risk from direct spray for most wildlife. No risk to moderate risk from consumption of contaminated vegetation or prey.
- Glyphosate – No risk to moderate risk from direct spray. No risk to moderate risk from consumption of contaminated vegetation or prey.

Other herbicides defined in the Vegetation Treatment PEIS also presented zero to moderate risk. Because of the relatively low risk of toxicological effects to most wildlife, even with direct spraying, the main risks to terrestrial wildlife from herbicide use are anticipated to be ingestion of contaminated vegetation or prey, and habitat modification. Given the targeted nature of chemical application techniques to be used on-site within the permanently and temporarily impacted areas, and the graded/disturbed nature of the anticipated permanently impacted areas, adverse direct and indirect effects are expected to be minimal and to be outweighed by the benefit of controlling the introduction and/or expansion of invasive species into native habitats.

More specific discussion regarding the four special-status wildlife species present within BLM lands in the project area is provided below. These discussions incorporate information from the BLM Vegetation Treatment PEIS/ROD (citation) and the Vegetation Treatment BA (citation) that were prepared for that effort related to impacts from the application of herbicides.

Reptiles

No new or more substantial impacts to reptiles are anticipated as a result of the project that were not analyzed in the programmatic assessment and documented in the BLM Vegetation Treatment PEIS/ROD and the associated BA that were prepared as part of that effort. Implementation of applicable conservation measures for reptiles defined in the Vegetation Treatment BA, and the SOPs in the Vegetation Treatment PEIS would minimize the potential for negative effects associated with herbicide application. The project would also prioritize use of herbicide active ingredients and rates that present the lowest risk for negative effects in special-status species habitat. The application of herbicides on BLM lands associated with the project is not likely to adversely affect reptiles.

Desert Tortoise

Desert tortoise is a Federal and State threatened species. There is the potential for impacts to approximately 43 acres of suitable desert tortoise habitat within BLM lands, of which only a portion would be treated through targeted herbicide application.

Two herbicides may be used to treat invasive plant populations in suitable tortoise habitat: glyphosate and triclopyr. Based on the assessment of amphibians and reptiles in the Vegetation Treatment PEIS and Vegetation Treatment BA, these herbicides are considered to have no to a moderate potential for impacts to terrestrial vertebrates from dermal contact, with the potential for a moderate risk only associated with glyphosate or triclopyr via direct spray at the maximum application rate. All other exposure pathways for direct contact (i.e., contact with sprayed vegetation) have a low to no risk potential. The Vegetation Treatment PEIS and Vegetation Treatment BA also analyzed desert tortoise specifically, and identified potential negative effects from ingestion of food sprayed with glyphosate or triclopyr at the typical application rate. All of these risk assessments were based on conservative assumptions and are not expected to underestimate the risk.

To decrease the potential for negative impacts, herbicide application within desert tortoise habitat would primarily consist of glyphosate at the typical application rate, and would consist of targeted treatment of individual weed plants. No broadcast treatment would occur.

There is very low potential for direct impacts to desert tortoise. Application of herbicides would occur after treatment areas are cleared for desert tortoise; therefore, the potential for direct spray is very low. Direct impacts would only occur if tortoises came in contact with treated vegetation. There is a low potential for indirect impacts resulting from drift or transport of herbicides in runoff; however, the treatment areas are expected to be very small and would be spread over different locations along the linear ROW. Only targeted application methods would be used to treat invasive plants.

Birds

No new or more substantial impacts to birds are anticipated as a result of the project that were not analyzed in the programmatic assessment and documented in the BLM Vegetation Treatment PEIS/ROD and the associated BA. Implementation of applicable conservation measures for birds defined in the Vegetation Treatment BA and the mitigation measures and SOPs in the Vegetation Treatment PEIS/ROD would minimize the potential for negative effects associated with herbicide application. The project would also prioritize use of herbicide active ingredients and rates that present the lowest risk for negative effects in special-status species habitat. The application of herbicides on BLM lands associated with the project is not likely to adversely affect birds.

Western Burrowing Owl

Western burrowing owl is a California SSC and a BLM Sensitive Species, and is protected by the MBTA. There is potentially suitable habitat within the project area.

Two herbicides may be used to treat invasive plant populations in suitable western burrowing owl habitat: glyphosate and triclopyr. Based on the general assessment of birds in the Vegetation

Treatment PEIS and associated BA, these herbicides are considered to have no to moderate risk for negative effects from ingestion of food. There are no risks identified from ingestion of fish or small vertebrates, and a low risk from ingestion of invertebrates or vegetation sprayed with glyphosate or triclopyr at the typical application rate. There is a moderate risk of negative effects from ingestion of invertebrates exposed to glyphosate or triclopyr applied at the maximum application rate, a moderate risk of negative effects from vegetation sprayed with triclopyr at the maximum application rate, and a low risk of negative effects from ingestion of vegetation sprayed with glyphosate at the maximum application rate. All of these risk assessments were based on conservative assumptions and are not expected to underestimate the risk.

There is a low potential for direct and indirect impacts associated with herbicide applications. Herbicide application would consist of targeted applications of invasive plants and would not consist of broadcast applications; therefore, only a portion of the total disturbance area would be affected by herbicides. Herbicides would not be applied in the immediate vicinity of a potentially occupied burrow. These areas would be treated by manual methods only.

Mammals

No new or more substantial impacts to mammals are anticipated as a result of the project that were not analyzed in the BLM Vegetation Treatment PEIS/ROD and the associated BA. Implementation of applicable conservation measures for mammals defined in the Vegetation Treatment BA and the mitigation measures and SOPs in the Vegetation Treatment PEIS/ROD would minimize the potential for negative effects associated with herbicide application. The project would also prioritize use of herbicide active ingredients and rates that present the lowest risk for negative effects in special-status species habitat. The application of herbicides on BLM lands associated with the project is not likely to adversely affect mammals.

Mohave Ground Squirrel

Mohave ground squirrel is a California threatened species and is assumed present within the project area.

Two herbicides may be used to treat invasive plant populations in suitable Mohave ground squirrel habitat: glyphosate and triclopyr. Based on the general assessment of impacts to small mammals, these herbicides are considered to have no to moderate risk for negative effects from ingestion of food. There are no risks identified from ingestion of vegetation or small vertebrates at the typical application rate, and a low risk from ingestion of invertebrates at the typical application rate and ingestion of vegetation sprayed with glyphosate at the maximum application rate. There is a moderate risk of negative effects from ingestion of invertebrates exposed to glyphosate or triclopyr applied at the maximum application rate. All of these risk assessments were based on conservative assumptions and are not expected to underestimate the risk.

There is a low potential for direct and indirect impacts associated with herbicide application. Herbicide application would consist of targeted applications of invasive plants and would not consist of broadcast applications; therefore, only a portion of the total disturbance area would be affected by herbicides. Herbicides would not be applied in the immediate vicinity of a potentially occupied ground squirrel burrow. These areas would be treated by manual methods only.

American Badger

American badger is a California SSC. Sign, including potential burrows, have been detected within the project area.

Two herbicides may be used to treat invasive plant populations in suitable badger habitat: glyphosate and triclopyr. Based on the general assessment of large mammals contained in the BA that was prepared as part of the BLM Vegetation Treatment PEIS, these herbicides are considered to have no to moderate risk for negative effects from ingestion of food. There are no risks identified from ingestion of small vertebrates exposed to glyphosate; no risk from triclopyr at the typical application rate and a low risk with ingestion of small vertebrates exposed to triclopyr at the maximum application rate; a low risk with ingestion of invertebrates or vegetation exposed to glyphosate or triclopyr at the typical application rate; and a moderate risk of negative effects from ingestion of invertebrates or vegetation exposed to glyphosate or triclopyr applied at the maximum application rate. All of these risk assessments were based on conservative assumptions and are not expected to underestimate the risk.

There is a low potential for direct and indirect impacts associated with herbicide applications. Because herbicide application would consist of targeted applications onto invasive plants, and not broadcast applications, only a portion of the total disturbance area would be affected by herbicides. In addition, American badger is a nocturnal animal, and treatment would occur during daylight hours; therefore, the potential for direct effects from direct spray are minimal. Areas would be surveyed for presence of wildlife and burrows before treatment. Herbicides would not be applied in the immediate vicinity of a potentially occupied burrow. These areas would be treated by manual methods only.

4.10 Lands and Realty

4.10.1 *Alternative 1 (No Action Alternative)*

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. As a result, none of the potential impacts associated with the construction and operation of the proposed alternative gen-ties on Federal lands managed by the BLM would occur. However, the gen-tie for the solar facility would likely be built on private land, so similar impacts could still occur on private lands.

Because of their location within a designated utility corridor, the Federal lands managed by the BLM on which the alternative gen-tie lines are proposed would become available to other uses that are consistent with BLM's land use plan, including gen-tie lines for other solar projects.

4.10.2 Alternatives 2, 3, and 4

Direct and Indirect Impacts

California Desert Conservation Area Plan

The public lands that could be crossed by the proposed Alternative 2 and Alternative 3 gen-tie alignments have been classified by the BLM as Multiple Use Class "L" or "Limited Use" lands. The Alternative 4 alignment would be located entirely on private lands, and would, therefore, not be subject to the CDCA Plan.

According to the CDCA Plan, Class L lands are to be managed to provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not substantially diminished. The CDCA Plan provides that new electric transmission facilities can be allowed within Class L lands if they are located within designated transmission corridors. The public lands in the project area lie within an energy corridor as designated in the 1980 CDCA Plan (Corridor A) (BLM 1980). In addition, the lands are also located within an Energy Policy Act Section 368 Energy Corridor. Corridor 23-106 in the project area was designated in 2009, and includes all of the BLM lands under consideration for Alternatives 2 and 3.

The 2008 PEIS prepared for the Federal west-wide energy corridors (Department of Energy and BLM 2008) found that Corridor 23-106 within the project area is consistent with the CDCA Plan. Accordingly, a plan amendment is not required for energy transmission projects proposed within the corridor.

Also according to the CDCA Plan, a plan amendment is not required for the approval of projects sited on Class L lands that satisfy the Multiple Use Class Guidelines. The proposed gen-tie line satisfies the Multiple Use Class Guidelines, as discussed previously in Section 3.22.

Local Land Use Plans and Ordinances

Portions of Alternatives 2 and 3 would be located on private lands near the Barren Ridge Switching Station, and all of the Alternative 4 alignment would be located on private lands. Project activities on these lands would be subject to the jurisdiction of Kern County. The private

lands through which the action alternative alignments would pass are classified in Kern County's General Plan as "Resource Management" land (Kern County 2009), and are zoned as "A" (Exclusive Agriculture), "AGH" (Limited Agriculture Geologic Hazard Combining), and "PLRS" (Platted Lands Residential Suburban Combining). These classifications and zoning allow for the construction of transmission facilities without a conditional use permit. The construction of a gen-tie on any of the alternative alignments would, therefore, be consistent with Kern County's General Plan.

Kern County's Zoning Ordinance also requires that the DOD review proposals to construct structures that will be taller than specified heights within certain zones. The project area lies within such a zone. The project Applicant submitted its plans to the DOD, and preliminary indications are that the DOD will concur that construction of the gen-tie would create no impacts to the military mission. Formal documentation of DOD's concurrence would be required prior to BLM approval. As such, construction of a gen-tie on any of the alternative alignments would be consistent with Kern County's Zoning Ordinance.

Land Use Conflicts

As described previously in Section 3.11, there are a number of existing and approved ROWs on the BLM lands in the vicinity of the action alternative gen-tie routes, most of which are associated with transmission lines interconnecting with the Barren Ridge Switching Station within BLM-designated Energy Corridor 23-106. The project Applicant has coordinated with the operators of these facilities and prepared a Utility Corridor Conflict Analysis for the proposed gen-tie to determine if the alternative gen-tie alignments would encroach upon the existing rights of adjacent operators. The analysis determined that no conflict would occur. For a summary of the analysis, see Section 4.6.2.

4.11 Noise and Vibration

4.11.1 Alternative 1 (No Action Alternative)

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. As a result, none of the potential impacts associated with the construction and operation of the proposed alternative gen-ties on Federal lands managed by the BLM would occur. However, the gen-tie for the solar facility could possibly be built on private land, so similar impacts could still occur on private lands.

Because of their location within a designated utility corridor, the Federal lands managed by the BLM on which the alternative gen-tie lines are proposed would become available to other uses that are consistent with BLM's land use plan, including gen-tie lines for other solar projects.

4.11.2 Alternatives 2, 3, and 4

Direct and Indirect Impacts

Noise and vibration would represent a short-term impact on ambient noise and vibration levels during construction of the action alternatives. Noise and vibration would be generated by equipment associated with construction of the gen-tie line, including power augers, cranes, trucks, and other equipment. Noise and vibration would also be generated during grading activities for the associated service road segments.

USEPA has compiled data regarding the noise-generating characteristics of specific types of construction equipment. Noise generated by heavy construction equipment at a distance of 50 feet can range from 60 dBA for a small tractor up to 100 dBA for rock breakers. The equipment used for construction of the gen-tie would include power augers or drills, a crane, material trucks, concrete trucks, and wire pulling and tensioning equipment that would generally generate noise in the range from 60 to 80 dBA. However, noise levels would diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 87 dBA measured at 50 feet from the noise source would be reduced to 81 dBA at 100 feet from the source, and be further reduced to 75 dBA at 200 feet from the source.

Construction activities along the gen-tie would last for approximately 6 months, with activities moving along the line as it is constructed. Construction activity for the proposed project would generally occur between 7 a.m. and 6 p.m., Monday through Friday. Additional hours may be necessary to make up schedule deficiencies or to complete critical construction activities. For instance, during extreme hot weather, it may be necessary to start work earlier in the morning or work later in the evening to avoid certain activities when ambient temperatures are high.

All project work (including any nighttime or weekend work), would comply with the Kern County Noise Ordinance (Kern County 2012: Code 8.36), which prohibits construction activity between the hours of 9 p.m. and 6 a.m. on weekdays, and 9 p.m. and 8 a.m. on weekends if noise from the activity is audible to a person with average hearing faculties or capacity at a distance of 150 feet from the construction site, and if the construction site is within 1,000 feet of an occupied residential dwelling. All locations where construction would take place would occur more than 10,000 feet (nearly 2 miles) from any occupied properties. At 3,000 feet, normal construction noise levels would be approximately 40 to 45 dBA, which would result in a negligible noise increase. Any vibration produced from construction activities would not be perceptible at those distances. Therefore, due to the spatial separation of the construction activities and their short duration, and the small amount of construction traffic associated with the gen-tie, the noise and

vibration generated during construction of the line would not be distinguishable, and impacts would be negligible.

Each of the action alternative gen-tie alignments would cross Pine Tree Canyon Wash, and a helicopter would be used during conductor installation across the wash. Installation would take approximately 5 days, during which time helicopters would be in use intermittently throughout the day. This activity would occur during daylight hours only, per the Kern County Noise Ordinance, and would be routed to avoid overflights over homes and sensitive receptors to the extent feasible. Based on the short duration of the helicopter use period, its limited hours of operation, and the distance of the project area from sensitive receptors, helicopter noise would not create an adverse effect to those receptors.

Operation and maintenance of the proposed gen-tie would generate substantially lower noise levels than project construction, and vibration generation would be negligible. Operations and maintenance of the proposed gen-tie would involve primarily periodic maintenance and worker trips only.

During operation, noise could be generated from what is referred to as the Corona Effect—a phenomenon associated with the electrical ionization of the air that occurs near the surface of an energized conductor and suspension hardware due to very high electric field strength. The audible power line noise is generated from electric Corona Effect discharge, which is usually experienced as a random crackling or hissing sound. The amount of Corona Effect produced by a transmission line is a function of the voltage of the line, the diameter of the conductors, the locations of the conductors in relation to each other, the elevation of the line above sea level, the condition of the conductors and hardware, and the local weather conditions. Corona Effect noise is primarily audible during wet weather conditions such as fog or rain. For transmission lines, the maximum Corona Effect noise during wet weather conditions is usually less than 40 dBA at a distance of 50 feet. During the dry conditions that normally occur in the project area, the noise levels from Corona Effect would be low: 20 dBA or less. This is consistent with previously measured and modeled noise levels on transmission line projects throughout California operating at full capacity. Therefore, noise impacts from operation would be minor and well below Kern County's most restrictive nighttime standard of 45 dBA.

Noise and vibration generated during decommissioning of the gen-tie would be similar to that generated during construction. Compared to construction activities, decommissioning activities would generally last for a shorter period of time and would have a lower intensity. Therefore, noise and vibration impacts related to decommissioning would be negligible.

4.12 Paleontological Resources

4.12.1 *Alternative 1 (No Action Alternative)*

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. As a result, none of the potential impacts to paleontological resources associated with the construction and operation of the proposed alternative gen-ties on Federal lands managed by the BLM would occur. However, the gen-tie for the solar facility would likely be built on private land, so similar impacts could still occur on private lands.

Because of their location within a designated utility corridor, the Federal lands managed by the BLM on which the alternative gen-tie lines are proposed would become available to other uses that are consistent with BLM's land use plan, including gen-tie lines for other solar projects.

4.12.2 *Alternatives 2, 3, and 4*

Direct and Indirect Impacts

As noted in Section 3.13, the Alternative 2 and 3 alignments would each traverse sedimentary deposits of Quaternary alluvium and small outcroppings of quartz monzonite (see Figure 3.13-1). By extrapolation, it can be determined that the Alternative 4 alignment would also traverse these same geologic units. As described in Section 3.13, younger Quaternary deposits, defined as fluvial and alluvial fan deposits less than 11,000 years old, have only minor sensitivity with respect to paleontological deposits. Igneous rocks, such as quartz monzonite, do not contain paleontological resources. Older Quaternary deposits, however, have a strong but undetermined potential for producing fossil remains. Older Quaternary deposits are defined as those deposits dating from between approximately 1.8 million and 11,000 years before present. Although no vertebrate fossil localities have been recorded within or near the project area, fossils have been recorded nearby from similar sedimentary deposits as those occurring in the project area.

All three of the alternative alignments would involve excavation of soils during the placement of foundations for the transmission structures. Installation of the gen-tie structures could result in excavations as deep as about 35 feet below grade. Older Quaternary alluvium deposits that could be fossil-bearing would be disturbed during the excavation process. The amount of disturbance to these deposits would vary slightly depending on the alignment, but based on the layouts of the alignments in relation to the older Quaternary alluvium (see Figure 3.13-1), the variation would be minimal and the potential impacts would be very similar.

Based on the above information, potential direct and indirect impacts to scientifically significant fossils could occur during construction of the gen-tie. Measures to avoid and minimize these impacts were provided in the paleontological resources survey report (Applied Earthworks 2014), which is attached to this EA as Appendix F. To mitigate these potential impacts, the Applicant would implement measures to avoid and minimize impacts to these resources, per the measure presented in Table 4.12-1.

Table 4.12-1. Paleontological Resources Avoidance and Minimization Mitigation Measure		
Measure Acronym	Measure	Timing
PAL-1	All construction workers and other on-site personnel will receive detailed environmental awareness training on paleontological resources prior to the start of the project. The training will be conducted by a qualified and BLM-permitted paleontologist, and will provide a description of the fossil resources that may be encountered in the project area, outline steps to follow in the event that a fossil discovery is made, and provide contact information for the project paleontologist. The training may be conducted concurrent with other environmental training (e.g., cultural and natural resources awareness training, safety training), and may also be video-recorded or presented in an informational brochure for future use by field personnel not present at the start of the project. No on-site monitoring by paleontological monitors is required due to the low to moderate potential of the underlying geologic units and small project footprint. However, the project paleontologist must be available throughout the construction phase on an on-call basis in the event that a paleontological resource is encountered by on-site personnel during the course of project construction.	Construction, decommissioning

Implementation of the protocols presented in Table 4.12-1 would effectively mitigate impacts to paleontological resources during the project’s construction. Since subsequent ground-disturbing activities would not occur during operation of the project, potential impacts would be limited to the construction phase, and continued mitigation and monitoring would not be required during the project’s operational phase.

Potential impacts could again occur during project decommissioning. This would occur during excavation of gen-tie transmission structure foundations (if required in the decommissioning plan) and other ground-disturbing activities in older Quaternary alluvium. Implementation of the mitigation measure presented in Table 4.12-1 would effectively mitigate any impacts that could occur during decommissioning.

Residual Impacts After Mitigation

Implementation of the above mitigation measure would effectively mitigate any effects to paleontological resources. No residual effects would remain.

4.13 Public Health and Safety

4.13.1 *Alternative 1 (No Action Alternative)*

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. As a result, none of the potential impacts to public health and safety associated with construction and operation of the proposed alternative gen-ties on Federal lands managed by the BLM would occur. However, the gen-tie for the solar facility would likely be built on private land, so similar impacts could still occur on private lands.

4.13.2 *Alternatives 2, 3, and 4*

The absence of known hazardous materials in the project area is discussed in Section 3.10. There are no hazardous materials or recognized environmental conditions identified on the BLM lands or private lands associated with the project.

Aboveground transmission lines can pose a threat to aviation safety if they are located within an airport land use plan or flight zone. The project area is not located within the airport compatibility zones associated with any of the public airports in Kern County. The closest public airport is the California City Airport, which is located approximately 4.8 miles to the southeast of the project area. The project area is, therefore, well outside of the airport's designated approach and departure zones.

Kern County's Zoning Ordinance (Kern County 2012) also requires that the DOD review proposals to construct structures that would be taller than specified heights within certain zones. The project area lies within such a zone. The project Applicant submitted its plans to the DOD, and preliminary indications are that the DOD will concur that construction of the gen-tie would create no impacts to the military mission. Formal documentation of the concurrence would be required prior to BLM approval. As such, construction of a gen-tie on any of the alternative alignments would be consistent with Kern County's Zoning Ordinance.

4.14 Recreation

4.14.1 *Alternative 1 (No Action Alternative)*

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via

an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. As a result, none of the potential impacts to recreational resources associated with construction and operation of the proposed alternative gen-ties on Federal lands managed by the BLM would occur. However, the gen-tie for the solar facility would likely be built on private land, so similar impacts could still occur on private lands.

Because of their location within a designated utility corridor, the Federal lands managed by the BLM on which the alternative gen-tie lines are proposed would become available to other uses that are consistent with BLM's land use plan, including gen-tie lines for other solar projects.

4.14.2 Alternatives 2, 3, and 4

Direct and Indirect Impacts

The project area is not a part of a BLM-designated recreation area. The principal recreation activities associated with the project area include OHV riding, primitive camping, hiking, hunting, and other outdoor pursuits. The various travel routes that cross the BLM-managed lands and private lands in the area provide recreation users with access to the area for the pursuit of these activities.

The alternative gen-tie alignments would all cross over or use these routes at various points along their alignments, but these routes would remain open and would continue to provide access to members of the recreating public. Prolonged closure of these routes during construction would not be expected, and in the event that closure is required for a brief period, only short segments in the vicinity of work areas would be affected. Any closures or safety-related measures to protect the recreating public during construction would be coordinated through the BLM.

4.15 Socioeconomics and Environmental Justice

4.15.1 Alternative 1 (No Action Alternative)

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of

the alternative gen-tie alignments. As a result, none of the potential impacts to socioeconomics and environmental justice associated with the construction and operation of the proposed alternative gen-ties on Federal lands managed by the BLM would occur. However, the gen-tie for the solar facility would likely be built on private land, so similar impacts could still occur on private lands.

Because of their location within a designated utility corridor, the Federal lands managed by the BLM on which the alternative gen-tie lines are proposed would become available to other uses that are consistent with BLM's land use plan, including gen-tie lines for other solar projects.

4.15.2 Alternatives 2, 3, and 4

Direct and Indirect Impacts

As discussed in Section 3.16, people living in the project area are considered an environmental justice population based on minority status and poverty status. Existing guidance concerning environmental justice communities requires agencies to determine if the impacts of a project's implementation would disproportionately affect environmental justice communities.

There are very few people residing in the project area who could be affected by any of the gen-tie alternatives. The nearest residence is approximately 2 miles from the closest portion of any of the alternative gen-tie alignments. Further, the proposed gen-tie would be constructed in accordance with all Federal, State, and local plans and policies associated with utilities. As described within this EA, all potential adverse effects from construction, operations and maintenance, and decommissioning of the gen-tie would be minimized with implementation of the mitigation measures prescribed throughout this document. Therefore, there would be no direct or indirect adverse health, environmental, or socioeconomic effects to any population resulting from construction or operation of any of the action alternatives. Therefore, implementation of any of the gen-tie alternatives would not result in high or adverse human health, environmental, or socioeconomic effects that would disproportionately affect an environmental justice population.

The project would provide a small number of construction jobs for specialty trades and would not displace any existing jobs. In general, there would be an increase in short-term employment associated with construction of the gen-tie, although it is likely that many of the construction employees would be drawn from outside of the local area based on the degree of specialization required for the construction of transmission structures. Some benefit to the local economy would be derived based on use of local lodging and eating establishments by construction personnel. These benefits, however, would be temporary and would largely cease following the completion of construction. Since gen-tie lines require limited maintenance and little in the way of regular service, long-term employment associated with operation of the gen-tie would be negligible. Crews of workers might be called to the area to perform a specific maintenance

activity, but these activities would be temporary, as would the local economic benefits associated with them.

4.16 Topography, Geology, and Soils

4.16.1 *Alternative 1 (No Action Alternative)*

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. As a result, none of the potential impacts relating to topography, geology, and soils associated with the construction and operation of the proposed alternative gen-ties on Federal lands managed by the BLM would occur. However, the gen-tie for the solar facility would likely be built on private land, so similar impacts could still occur on private lands.

Because of their location within a designated utility corridor, the Federal lands managed by the BLM on which the alternative gen-tie lines are proposed would become available to other uses that are consistent with BLM's land use plan, including gen-tie lines for other solar projects.

4.16.2 *Alternatives 2, 3, and 4*

Direct and Indirect Impacts

The project would not require mass grading or other activities that would substantially alter the existing topography. Construction of the service road segments would occur on areas of low to moderate slope, and would be comparable to existing dirt roadways in the area. Placement of transmission structures would generally occur below grade, and would not alter area topography.

The principal geology and soils hazards in the area are the potential for ground shaking and fault rupture. The gen-tie would be subject to strong ground shaking due to movements along the faults in the area (see Section 3.17). Direct impacts to the gen-tie could occur from strong seismic ground shaking, and indirect impacts could occur in the form of damage to equipment that would require replacement. The preconstruction geotechnical investigations would inform the design of foundations and structures for the gen-tie. Following the geotechnical investigation, all structures and foundations would be designed and constructed to professional standards in accordance with applicable codes for the area.

The Garlock (West) Fault runs along the base of Barren Ridge and is located several hundred feet west of the closest alignment alternative. Accordingly, direct damage to the gen-tie from fault rupture would be unlikely based on the distance from the potential fault rupture zone.

Soils in the project area predominately consist of loamy sands. These soils are generally well-drained and are moderately susceptible to water erosion in areas of high slope. Slopes along the alternative gen-tie alignments are only moderate, and generally range from 2% to 15%. Implementation of standard BMPs during construction would suffice to limit the potential for water erosion.

Occasional high winds are common in the area, which make disturbed and loose soils susceptible to wind erosion during construction. As discussed in Section 4.8, the service road and other areas of disturbance would be watered during construction to lessen wind erosion and dust production. Implementation of these standard techniques would limit the potential for wind erosion during construction.

4.17 Transportation and Public Access

4.17.1 *Alternative 1 (No Action Alternative)*

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. As a result, none of the potential impacts relating to transportation and public access associated with construction and operation of the proposed alternative gen-ties on Federal lands managed by the BLM would occur. However, the gen-tie for the solar facility would likely be built on private land, so similar impacts could still occur on private lands.

Because of their location within a designated utility corridor, the Federal lands managed by the BLM on which the alternative gen-tie lines are proposed would become available to other uses that are consistent with BLM's land use plan, including gen-tie lines for other solar projects.

4.17.2 *Alternatives 2, 3, and 4*

Direct and Indirect Impacts

Potential impacts to transportation and public access would generally center around construction traffic going to and leaving the project area on SR-14, as well as potential impacts to existing

BLM-designated and private lands routes that would be crossed or used during construction and operation of the proposed gen-tie.

SR-14 is a moderately travelled, divided four-lane roadway in the vicinity of the project area. Left-turn lanes with long pockets are provided at all turning locations along the highway segment that passes through the project area. Wide shoulders are also present along the right side of the roadway in both directions. Road conditions and visibility are excellent, and traffic volumes are lower than what would be expected for a roadway that has been built to SR-14's existing standards. As such, any increases in traffic volumes during construction would have negligible effects on existing traffic conditions. Based on the roadway's existing configuration, along with the presence of adequate turn lanes, shoulders, sight distances, and signage, construction vehicles exiting and entering the highway would be able to do so safely and without slowing or impeding traffic flows.

A number of BLM-designated and private-land routes would be used during project construction. Several other BLM-designated and private-land routes would be crossed by the proposed alternative gen-tie alignments. The project Applicant would obtain easements from private land owners prior to using or crossing private roads. Current traffic along these routes is very limited, and is generally restricted to occasional recreational users and maintenance crews associated with the existing transmission facilities in the area. Existing uses would not be impeded during construction or operation. Designated routes would remain available for public use. Prolonged closure of these routes during construction would not be expected, and in the event that closure is required for a brief period, only short segments in the vicinity of work areas would be affected. Any closures or safety-related measures to protect the recreating public during construction would be coordinated through the BLM.

4.18 Visual Resources

4.18.1 *Alternative 1 (No Action Alternative)*

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. As a result, none of the potential impacts relating to visual resources associated with the construction and operation of the proposed alternative gen-ties on Federal lands managed by the BLM would occur. However, the gen-tie for the solar facility would likely be built on private land, so similar impacts could still occur on private lands.

Because of their location within a designated utility corridor, the Federal lands managed by the BLM on which the alternative gen-tie lines are proposed would become available to other uses that are consistent with BLM's land use plan, including gen-tie lines for other solar projects.

4.18.2 Alternatives 2, 3, and 4

Landscape scenery impacts (see Appendix H, Table 8) were determined based on the comparison of change caused by each of the gen-tie alternatives with the scenic quality inventory of the affected environment. The results are based on consideration of existing scenic quality rating/scores, existing landscape character, presence or absence of existing industrial development (e.g., transmission lines, pipelines), and the effect of introducing a gen-tie into the landscape as either a new or additional cultural modification.

Sensitive viewers' impacts were determined based on the comparison of change caused by the gen-tie with sensitivity/user concern levels, distance zones (0 to 0.5 mile, 0.5 to 2.5 miles, 2.5 to 5 miles, and greater than 5 miles), and visibility of the gen-tie for each of the action alternatives (Tables 9 and 10, Appendix H).

Visual impact levels were outlined by alternative (see Table 11, Appendix H). Impacts to landscape scenery were determined by measuring the extent of effects of the alternative's structures, access roads, and disturbed ROWs on the scenic landscape through spatial analysis of BLM's visual resource inventory and visual quality classifications (BLM 1986a, 1986b). Impacts to viewers were determined by measuring the visual effects of the transmission structures, access roads, and disturbed ROWs on people through spatial analysis of BLM's visual resource inventory, sensitivity levels, and distance zones.

Compliance with BLM VRM objectives was determined by comparison of objectives with visual contrast ratings and evaluating the five proposed build alternatives (Alternatives 2A, 2B, 2C, 3, and 4). Alternative 2C's visual appearance would be essentially identical to Alternative 2B, so the analytical results for Alternative 2B were adopted for Alternative 2C as well.

Direct and Indirect Impacts

Visual resources in the visual landscape would be affected by transmission line construction and operation. During construction, viewshed disturbance, including project visibility in the visual landscape, includes the addition of self-supporting steel lattice structures, steel triple pole structures, or wooden H-frame structures; conductors; cleared ROWs; temporary buildings; fences; and construction-related equipment, debris storage, and ground areas cleared for construction, such as access roads, transmission line tower work areas, conductor stringing and tensioning sites, material storage yards, staging areas, ground electrode systems, and electrical lines.

During operation, visual resources would be impacted in a similar manner due to contrasts from transmission structures; terminal facilities; ground electrode facilities; and disturbance by cleared ROWs, permanent access roads, and other areas of ground or vegetation disturbance.

Direct impacts to people and scenery in the visual landscape would occur from visual changes to the context of the visual landscape or modifications of the characteristic landscape, and/or from introductions of contrasting forms, lines, colors, and textures of landform, vegetation, and structures needed to accommodate construction and operation of the gen-tie.

In undeveloped areas, impacts to the visual landscape caused by pyramidal forms of structures, vertical and horizontal lines of structures and conductors, silvery-grey and tan colors, and smooth textures would result from multiple steel or wooden structures along the tangents, and vegetation clearing, fences, and roads. In viewsheds with existing electrical transmission line structures and ground disturbances, contrasts would be weak to moderate, depending on distance from the observer and number and type of structures. In all cases, construction activities or permanent structures occurring in the immediate foreground of the observer would cause greater contrasts and/or impacts to the visual landscape than those appearing at a greater distance.

As noted in Section 3.19.1, to preserve continuity, approved Interim BLM VRM Classifications from the immediately adjacent BRRTTP were adopted for this project. For the BRRTTP, the surrounding scenic quality was classified as BLM Class C scenic quality, or a “common area where characteristic features have little variation in form, line color, or texture in relation to the surrounding region” (BLM 1986a), which applies to the entirety of the project area. Also for the BRRTTP, the BLM VRM objectives were assigned an interim classification of Class III. For Class III landscapes, the management objective “is to partially retain the existing character of the landscape. Changes to the landscape character may begin to attract attention, but should not dominate the visual setting” (BLM 1986a).

Figures 9 through 20 in Appendix H provide simulated visual effects for each alternative. Lattice towers were simulated at the Pine Tree Canyon Wash crossing for all of the alternatives. As discussed in Section 2.6, lattice towers may be substituted with triple-pole steel structures at the wash crossing. However, lattice towers were used for the simulations at that location to ensure that a worst-case scenario was presented. Table 4.18-1 shows a summary of the visual resources impact levels for each alternative, as derived from the analysis contained in Appendix H.

Table 4.18-1. Summary of Visual Resources Impact Levels		
Alternative	Impact	Criteria
3, 4	High	These alternatives would be visible within 0.5 mile by high-sensitivity viewers (i.e., travelers on the adjacent SR-14).
2A, 2B, 2C	Low	<p>These alternatives would be dominant or co-dominant in Class C landscape scenery.</p> <p>These alternatives would be visible from greater than 2 miles by medium-sensitivity viewers.</p> <p>These alternatives would parallel and be co-dominant with existing transmission line features.</p>

Compliance with BLM Class III VRM objectives was determined by comparison of the objective with visual contrast ratings and evaluating each of the five build alternatives (Alternatives 2A, 2B, 2C, 3, and 4). The summary of each alternative’s compliance with the VRM objectives is provided in Table 4.18-2 by alternative.

Table 4.18-2. Summary of Visual Resource Management Objective Compliance		
Alternative	Compliant?	Criteria
3, 4	No	These alternatives would have a high contrast in areas with Visual Resource Management (VRM) Class III objectives.
2A, 2B, 2C	Yes	These alternatives would have a low contrast in areas with VRM Class III objectives.

Based on the information presented in 4.18-2, as well as the more detailed information and simulations provided in Appendix H, Alternatives 3 and 4 would not be consistent with BLM Class III VRM objectives for the area. This is largely due to their proximity to SR-14 (less than 0.5 mile) and their separation from existing and similar transmission structures. Alternatives 2A, 2B, and 2C would be consistent with BLM Class III VRM objectives since these alternative alignments would be located farther away from SR-14 (greater than 0.5 mile) and because of their proximity to existing and similar transmission structures. The effect of their greater distance from sensitive viewers and their proximity to existing transmission lines would create low levels of contrast, and, thus, render their overall visual effect as consistent with Class III objectives.

Mitigation for the adverse visual effect that would be created by the implementation of Alternatives 3 and 4 is not available. This is because both of these alternatives would introduce a dominant visual element to the visual environment in proximity to sensitive viewers. This effect would be inconsistent with VRM objectives for the area. As such, implementation of either Alternative 3 or Alternative 4 would result in an unavoidable adverse effect to visual resources.

4.19 Water Resources

4.19.1 *Alternative 1 (No Action Alternative)*

Under Alternative 1, a gen-tie would not be approved on Federal lands managed by the BLM. As a result, a gen-tie would not be constructed on Federal land to interconnect the private land solar facility to the Barren Ridge Switching Station. The solar facility would obtain gen-tie access via an alternative means that does not involve BLM-managed land or issuance of a separate ROW authorization. The likely non-BLM lands alternative would be similar, if not identical, to Alternative 4.

It is expected that the Federal lands managed by the BLM would continue to remain in their existing condition, with no new structures or facilities constructed or operated in the locations of the alternative gen-tie alignments. As a result, none of the potential impacts relating to water resources associated with the construction and operation of the proposed alternative gen-ties on Federal lands managed by the BLM would occur. However, the gen-tie for the solar facility would likely be built on private land, so similar impacts could still occur on private lands.

Because of their location within a designated utility corridor, the Federal lands managed by the BLM on which the action alternatives are proposed would become available to other uses that are consistent with BLM's land use plan, including gen-tie lines for other solar projects.

4.19.2 *Alternatives 2, 3, and 4*

Impacts to surface water resources would be limited, and would be largely related to surface flows that could be impacted by the service road or service road segments. There are no perennial streams in the area, and the only flows that occur are during infrequent storm events. Flows during storm events occur only as sheet flow or within small ephemeral drainageways that generally run perpendicular to the surrounding slopes. Flows within these features during storm events could be interrupted or diverted by the service road. However, flows would be allowed to pass over the service road via carefully placed cutouts within the roadbed that would allow flows to cross the roadway along their existing courses. These features would be maintained during the operational phase of the project. During construction, standard BMPs would be implemented to limit the effects of water erosion on loose and disturbed soils. These measures could include the placement of straw bales or waffling, or other techniques to slow and redirect flows to limit their erosive potential.

No wells or impoundments would be constructed or used as part of project construction or operation. Water would be trucked to the site, as needed. The amount of water required during construction would range from about 5 acre-feet for Alternatives 2 and 3 to 7 about acre-feet for Alternative 4. Water used for dust control and other purposes during construction, as well as water used for herbicide mixing and other purposes during operation, would likely be provided by a municipal water purveyor in the region. The Mojave Public Utilities District has indicated that it could provide water that could be trucked to the site. The northern service area boundary

of the Mojave Public Utilities District is within 5 miles of the project area, and would be the most likely place to designate a metered connection. Water thus derived would be from entitled, authorized, and available sources.

Wetlands or other water resources under the jurisdiction of USACE are not present within the project area. There would, therefore, be no impact to these resources.

Pine Tree Canyon Wash, which is part of a FEMA-designated Flood Zone “A” (FEMA 2008), would be crossed by all of the alternative gen-tie alignments. However, no transmission structures or new service road segments would be constructed within the wash. The transmission line would instead span the entire width of the wash, and no structures would be placed within the wash itself. Similarly, no new service road segments would be constructed in the wash. Access to the gen-tie would either occur using existing service roads or via access road segments that would terminate on either side of the wash. Therefore, no gen-tie components would be located within the wash, and there would be no impacts to floodplains or aquatic resources within the wash.

4.20 Cumulative Impacts

The analysis of cumulative impacts takes into account the effects of the project in common with other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7). This analysis identified past actions that are closely related either in time (temporal) or space (geographical proximity) to the project area, present actions that are occurring at the time this EA was being prepared, and reasonably foreseeable future actions (BLM 2008).

Table 4.20-1 provides a listing of reasonably foreseeable projects which have the potential to combine with the effects of the proposed action or alternatives to cause adverse cumulative impacts for specific resources. The list was generated through consultation with the BLM, Kern County, and the cities of California City and Ridgecrest, as well as through review of environmental analysis documents for other nearby projects. Reasonably foreseeable projects are those for which there is an existing decision, funding, or formal proposal such as an application submitted to the appropriate agency (see BLM NEPA Handbook H-1790-1 at sec. 6.8.3.4). The renewable energy projects listed include those contained on Kern County’s active renewable energy projects lists (Kern County 2014a, 2014b). The land use projects listed are those contained in the county’s listings for active environmental documents and Notices of Preparation (Kern County 2014c, 2014d). Sources of information for California City and Ridgecrest included each city’s planning department website, as well as a review of City Council and Planning Department agendas from the last 24 months.

The projects listed, if implemented, could result in impacts that could contribute cumulatively to impacts in the area. Some of these projects have recently been constructed or are currently under construction, in which case they can be considered part of the environmental baseline. They are

included here, however, to consider the overall cumulative effect of the numerous projects occurring in the region.

Table 4.20-1. Cumulative Projects			
Project Name	Description of Project	Location	Jurisdiction
Energy Transmission Projects			
Barren Ridge Renewable Transmission Project	76-mile, 230-kilvolt (kV) transmission line	Immediately west of the Alternative 2 gen-tie alignment	BLM, U.S. Forest Service (USFS), Kern County, Los Angeles County
Tehachapi Renewable Transmission Project	173 miles of upgraded and new 500-kV transmission lines in Kern, Los Angeles, and San Bernardino Counties	Nearest segment approximately 17 miles southwest of project area	BLM, USFS, Kern County, Los Angeles County
Wind Projects			
Alta East	318 megawatts (MW) on 2,592 acres	9 miles southwest of project area	Kern County, BLM
Avalon	300 MW on 7,369 acres	18 miles southwest of project area	Kern County
Rising Tree	150 MW 4,019 acres	10 miles southwest of project area	Kern County
Solar Projects			
American Solar Utilities	PV solar generation facility on 39 acres	7 miles southeast of project area	California City
Antelope Valley Solar Project	650 MW on 5,698 acres	30 miles southwest of project area	Kern County
Beacon Solar Project	250 MW on 2,320 acres	3 miles northwest of project area	Kern County
Borax Solar Project	20 MW on 320 acres	19 miles southeast of project area	Kern County
Catalina	150 MW on 1,223 acres	21 miles southwest of project area	Kern County
Champagne Road Solar PV Project	40 MW on 320 acres	20 miles west of project area	Kern County
GE Energy LLC	40 MW on 337 acres	18 miles southwest of project area	Kern County
Gateway Solar Project	350 MW on 3,066 acres	15 miles southeast of project area	Kern County
Harris	1.5 MW on 40 acres	19 miles west of project area	Kern County
Kingbird Solar	40 MW on 324 acres	35 miles southwest of project area	Kern County
Los Angeles Department of Water and Power	10 MW on 75 acres	5 miles northwest of project area	Kern County

Table 4.20-1. Cumulative Projects			
Project Name	Description of Project	Location	Jurisdiction
Nautilus Solar Energy	9 MW on 110 acres	9 miles northeast of project area	Kern County
Oro Verde Solar	450 MW on 1,500 to 4,000 acres	20 miles southeast of project area	Edwards Air Force Base
Prewoznik Solar Project	20 MW on 146 acres	18 miles southeast of project area	Kern County
RE Cinco	60 MW on 500 acres	Immediately south of alternative gen-tie alignments	Kern County
RE Clearwater & Yakima	40 MW on 432 acres	13 miles southwest of project area	Kern County
RE Columbia One	20 MW on 165 acres	13 miles southwest of project area	Kern County
RE Columbia Two	20 MW on 132 acres	12 miles southwest of project area	Kern County
RE Columbia Three	10 MW on 68 acres	12 miles southwest of project area	Kern County
RE Garland	200 MW on 2,116 acres	32 miles southwest of project area	Kern County
RE Great Lakes	5 MW on 40 acres	27 miles southwest of project area	Kern County
RE Rosamond One	20 MW on 320 acres	25 miles southwest of project area	Kern County
RE Rosamond Two	20 MW on 160 acres	25 miles southwest of project area	Kern County
RE Tehachapi Solar One	20 MW on 160 acres	17 miles east of project area	Kern County
RE Tehachapi Solar Two	20 MW on 157 acres	17 miles east of project area	Kern County
Rosamond Solar	40 MW on 230 acres	14 miles southwest of project area	Kern County
Rosamond Solar Project	120 MW on 960 acres	28 miles southwest of project area	Kern County
SEPV Mojave West	40 MW on 230 acres	18 miles southwest of project area	Kern County
Shorebreak Solar	20 MW on 200 acres	16 miles southwest of project area	Kern County
Sinarpower Solar	4 MW, acreage not available	16 miles southwest of project area	Kern County
Springbok Solar	150 MW on 2,298 acres	8 miles northeast of project area	Kern County
Tehachapi Valley Solar	45 MW, acreage not available	21 miles west of project area	Kern County

Table 4.20-1. Cumulative Projects			
Project Name	Description of Project	Location	Jurisdiction
Transportation Projects			
California High Speed Rail	+/-700-mile high-speed rail line from Sacramento to San Diego; Central Valley segment currently under construction	13 miles southwest of project area	California
Land Use Projects			
Antelope Valley Water Bank Project	13,440-acre facility to store imported water	30 miles southwest of project area	Kern County, Bureau of Reclamation
Indian Wells Valley Land Use Plan	Notice of Preparation of a Draft Environmental Impact Report (EIR) was filed on July 28, 2014; project would balance land uses to reduce future water consumption	32 miles north of project area	Kern County
Tehachapi Sanitary Landfill Permit Revision Project	Project is to increase capacity and upgrade landfill gas equipment; Draft EIR completed in August 2014	15 miles southwest of project area	Kern County

Brief Descriptions of Cumulative Projects

The projects listed in Table 4.20-1 cover a range of potential effects which may combine with those of the proposed action and alternatives. Those projects which are closer in proximity, larger in scale, more likely to be implemented, and similar in their types of effects are more likely to contribute to cumulative impacts, while those which are more distant, smaller in scale, are more speculative, or have different effects are less likely to combine with the effects of the proposed action and alternatives to cause adverse cumulative effects. The following paragraphs provide a brief description of those projects which, because of closer proximity, larger scale, and similarity of effects, are judged to be most significant in the cumulative analysis. The additional projects from Table 4.20-1 which are not discussed in these paragraphs are judged to have little or no potential to combine with the proposed action or alternatives to cause adverse cumulative effects, but are included in Table 4.20-1 for completeness.

Transmission Projects

Barren Ridge Renewable Transmission Project – LADWP has been approved to construct the BR RTP, which will eventually involve the construction or upgrading of approximately 76 miles of 230-kV transmission line in Kern and Los Angeles Counties, as well as upgrades to existing substations and switching facilities. The purpose of the project is to facilitate the transmission of energy generated by solar and wind power in the western Mojave Desert. The northern segment of the transmission line portion of the BR RTP project would be located immediately adjacent to the Alternative 2 alignment described in this EA, and the Alternative 2 gen-tie would connect to the recently upgraded Barren Ridge Switching Station, the upgrade of which is also a part of the

BR RTP. Approximately 33 miles of new 230-kV transmission line would be constructed along the Kern County segment of the BR RTP.

Tehachapi Renewable Transmission Project – Southern California Edison is constructing the Tehachapi Renewable Transmission Project, and, when completed, the project will include new and upgraded infrastructure along 173 miles of new and existing ROWs in several Southern California counties, including southern Kern County. The purpose of the project is to facilitate the transmission of energy generated by wind power in the Tehachapi area. Construction began in 2010, and is estimated to be completed in 2015. Approximately 20 miles of 500-kV transmission line will be constructed in Kern County as part of the project, along with three substations. Additional transmission construction will occur in Los Angeles and San Bernardino Counties.

Generation Projects

As can be seen in Table 4.20-1, renewable energy projects comprise the bulk of the development activity in the region. These projects would directly affect many thousands of acres, and the combined actions of all other types of projects in the area would be but a fraction of those that would result from renewable energy projects. These generation projects, in turn, drive the need for associated transmission and infrastructure projects, such as the BR RTP and Tehachapi Renewable Transmission Project.

Other Major Projects and Activities

Antelope Valley Water Bank Project – This project will develop facilities to store and recharge imported water. The 13,440-acre facility will include associated delivery and distribution pipelines, and would be located west of Rosamond near the Kern/Los Angeles County line.

Indian Wells Valley Land Use Plan – The Indian Wells Valley Land Use Plan is a proposal to address growing reductions of groundwater availability and ongoing military air navigation operations in the area by balancing land uses to reduce future water consumption and implementing compatible land uses for noise and safety in conformance with the Air Installation Compatible Use Zone Study for Naval Air Weapons Station China Lake. The project would be located in northeast Kern County, adjacent to the Inyo County and San Bernardino County borders, north of California City. The project applicant filed a Notice of Preparation of a Draft EIR on July 28, 2014.

Tehachapi Sanitary Landfill Permit Revision Project – A Draft EIR was completed in August 2014 to revise the Tehachapi Sanitary Landfill's Conditional Use Permit, Solid Waste Facility Permit, Permit to Operate, and Waste Discharge Requirements to increase the permitted capacity and height of the existing landfill and the permitted area of the facility to include adjacent property acquired as buffer to the active landfill. Furthermore, the project would allow for the

construction of upgraded landfill gas equipment, if necessary, and drainage improvements. The landfill is located at 12001 Tehachapi Boulevard, 15 miles southwest of the project area.

California High Speed Rail – The California High Speed Rail will consist of approximately 700 miles of high-speed-rail line from Sacramento and San Francisco to San Diego. The statewide PEIS/EIR was completed in 2005. Multiple second-tier project-level documents are currently underway. Portions of the California High Speed Rail project are under construction in the Central Valley. An approximately 25-mile-long portion of the Bakersfield-to-Palmdale segment would pass through the western Mojave Desert region of Kern County.

4.20.1 Cumulative Impacts Analysis

The direct and indirect effects of the action alternatives combined with the effects of the other actions that have a cumulative effect are analyzed for each resource or issue area below. Because the cumulative effects for all of the action alternatives are essentially the same, the action alternatives are discussed collectively rather than individually.

As discussed in BLM’s NEPA Handbook H-1790-1 at Sections 6.8.3.1 and 6.8.3.2, no cumulative impact analysis is necessary for resources for which the proposed action and alternatives would have no direct or indirect effects. The analysis of direct and indirect effects in the previous subsections in Chapter 4 came to the following conclusions, with the resulting approach for the cumulative effects analysis for each resource:

- Direct or indirect effects from the proposed action or alternatives would occur to air resources, biological resources, energy, grazing, noise, and visual resources. An analysis of cumulative effects for these resources is provided below.
- No adverse effects would occur to hazardous materials, fire, land use, public health and safety, recreation, socioeconomics or environmental justice, topography/geology/soils, transportation, surface water, or groundwater. Therefore, no further discussion of these resources is provided.
- No known effects to cultural resources or paleontology were identified. However, both resources may exist in the project area, and may potentially be impacted by the proposed action and alternatives. Therefore, a discussion of the potential for cumulative effects to these resources is provided below.

Air Resources

The action alternatives are located within the Mojave Desert Air Basin (MDAB). The basin is a very large area that covers the High Desert portions of Los Angeles, Kern, and San Bernardino counties, as well as the eastern portion of Riverside County.

Cumulative analysis of air quality effects is affected by several factors. First, the geographic scope of analysis is complicated by the fact that projects outside of the air basin can contribute criteria pollutants into the basin, and project emissions from within the basin can potentially be transported to downwind basins. Therefore, there is no defined and yet practical geographic range for determining a list of past, present, and reasonably foreseeable future projects. Another factor is the direction provided in the BLM NEPA Handbook H-1790-1 regarding analysis of cumulative effects from past actions. Section 6.8.3.4 of the handbook states that past actions can be described by their aggregate effects, without listing or analyzing the effects of individual projects. Their aggregate effects, in general, are captured and described as the Affected Environment for each resource. For air quality analysis, this means that the actual measured levels and attainment status for criteria pollutants over time represent the aggregate effects of all past and present projects which have the potential to combine with effects of the action alternatives.

Based on these factors, the approach for cumulative analysis of air effects in this document is as follows:

- Identify a geographic area in which the effects of past and present projects, and those of the proposed action and alternatives, have been measured and reported.
- Identify a geographic area in which criteria are available that can be used to evaluate the significance of the measured cumulative effects.
- Determine if significant cumulative effects are to be expected within the area in which the criteria are available.
- The effects of air emissions are generally highest closest to the source, and become diluted with greater distance. Therefore, if emissions from the project and other projects do not contribute to significant cumulative effects within a limited area of analysis in close proximity to the project, it is highly unlikely that they would have any contribution to significant effects outside of that area.
- If that analysis indicates that adverse cumulative effects exist within an area in close proximity to the project, then expand the geographic area as needed to fully understand the range of the cumulative effects.

With respect to the first item above, the initial geographic scope of analysis is focused on BLM's West Mojave (WEMO) Planning Area. To support an evaluation of an amendment to BLM's California Desert Conservation Area (CDCA) Plan, BLM commissioned a report on air quality within the entire WEMO area from the Mojave Desert Air Quality Management District (MDAQMD 2013). This report summarized the historical trends in air quality throughout the WEMO area, which includes the project site. Therefore, this report provides not only a direct

measurement of the current air quality as impacted by past and current projects, but summarizes the trends in those measurements since 1980 (for ozone) and 1986 (for PM10).

With respect to the second item, the appropriate region of interest is the East Kern Air Pollution Control District (EKAPCD). For purposes of air quality management, the MDAB is divided into several air quality management districts. The basin includes the entire Mojave Desert Air Quality Management District (MDAQMD), East Kern Air Pollution Control District (EKAPCD), and Antelope Valley Air Quality Management District (AVAQMD), and portions of the South Coast Air Quality Management District (SCAQMD). Each district monitors its own attainment status with respect to both national and state ambient air quality standards. The project is located within the EKAPCD, which manages air quality for the project area, and has developed its own plans and regulations to meet federal and state standards. As indicated in Section 3.2, the EKAPCD is in moderate “nonattainment” for the Federal 8-hour ozone standard. Likewise, the EKAPCD is in nonattainment of the State 1-hour and 8-hour ozone and PM10 standards. The EKAPCD is currently in attainment and/or unclassified status for all other Federal ambient air quality standards. It is also in attainment and/or unclassified status for all other State ambient air quality standards.

The non-attainment status indicates that past and present actions that contribute criteria pollutants to the EKAPCD have had an adverse impact on air quality. As discussed in Section 4.1, the proposed action and alternatives would have associated air emissions, and they would therefore contribute to an adverse aggregate effect. However, the trend in pollutant concentrations in the area indicates that the overall effect of government actions is positive. As shown in the MDAQMD report (MDAQMD 2013), the concentrations of both ozone and PM10 have been steadily declining in the area since the 1980s. The report attributes this decline to a combination of stricter air emission standards for motorized vehicles (a major contributor to cumulative air quality effects), increased regulation of construction and development projects, and a decrease in development due to planning efforts by BLM and other agencies to protect desert resources, particularly the desert tortoise.

The contribution of emissions from the proposed action to these cumulative effects would be temporary, and would not create unmitigated construction air quality impacts based on applicable standards. Both construction and operational air quality emissions for each of the action alternatives would be well below de minimis levels, and their contribution to cumulative air impacts would be negligible. In addition, each reasonably foreseeable future project would be required to undergo its own environmental analysis under NEPA, CEQA, or both depending on the project and the applicable lead agencies. As part of those processes, mitigation would be prescribed to lessen the identified effects, and to ensure conformance of the project with any applicable State Implementation Plan (SIP). Although it is possible that some of the reasonably foreseeable projects could still result in unavoidable and adverse air quality effects even with the implementation of mitigation and standard regulatory compliance measures, the overall trend is

an improvement of air quality in the regulated area. Any effects from the project or the other reasonably foreseeable future projects would be localized, temporary, and would not affect the overall trend of improvement in air quality, and would not result in changes in the attainment status within the EKAPCD. Therefore, the cumulative impact of the proposed action (or any of its action alternatives) is not significant.

Because the cumulative emissions of the proposed action (or any of its action alternatives), combined with those of the past, present, and reasonably foreseeable future projects, are not significant within the local regulated area, and they would have even less effect at a further distance, they would also not be significant in other areas of the MDAB outside of the EKAPCD. Therefore, all of the action alternatives, in combination with the past, present, and reasonably foreseeable future projects in the EKAPCD, would not contribute to a significant, cumulative impact on air quality, and a broader geographic analysis is not applicable.

Biological Resources

The revised Desert Tortoise Recovery Plan (USFWS 2011) designated five contiguous Recovery Units across the Mojave Desert within California, Nevada, Arizona, and Utah. The action alternatives are located within the Western Mojave Recovery Unit, which is a large area that includes all of the desert portions of Kern County, as well as the desert portions of Los Angeles County, Inyo County, and most of San Bernardino County. Based on the similarity of habitats found within the Western Mojave Recovery Unit, the recovery unit is used in this analysis as the area of consideration for cumulative impacts to biological resources.

As discussed in Sections 4.2 and 4.3, none of the action alternatives would result in adverse effects to biological resources. Mitigation would be implemented to lessen identified effects to biological resources, including effects to federally listed threatened and endangered species. To ensure no adverse cumulative net loss of biological resources, the Applicant would compensate for impacts to federally and State-listed species through off-site habitat acquisition and conservation, thereby mitigating for impacts to species and their habitats. The Applicant would coordinate with the BLM and CDFW to ensure that off-site habitat acquisition and conservation for federally and State-listed species is consistent with the goals and objectives of applicable recovery or management plans (e.g., the Desert Tortoise Recovery Plan). For listed species, implementation of the action alternatives would affect, but not adversely affect, listed species. The analysis in Sections 4.2 and 4.3 presented similar findings for impacts to other biological resources, including migratory birds and other sensitive species not listed under the Endangered Species Act. Therefore, none of the action alternatives would result in an adverse effect to biological resources.

As development pressures increase within the western Mojave Desert, cumulative impacts to biological resources within the region are increasing. When added together, the projects within

the Western Mojave Recovery unit would disturb many thousands of acres. These projects would convert currently undeveloped areas and their associated habitats to other uses.

The principal federally regulated biological resource of concern in the Recovery Unit is desert tortoise. In the most recent review of the species' status, habitat loss due to urbanization or other modification was identified as the most prominent threat (USFWS 2010). Nussear et al. (2009) modeled desert tortoise habitat within the Western Mojave Recovery Unit (and other recovery units) based on a number of physiographic factors. Modeled habitat was rated on a scale of 0.0 to 1.0. For the purposes of assessing cumulative impacts to desert tortoise habitat, modeled habitat with a rating of 0.5 and higher is considered suitable desert tortoise habitat. Modeling identified approximately 7,582,092 acres of suitable desert tortoise habitat (i.e., habitat with a rating of 0.5 and higher) in the Western Mojave Recovery Unit. In 2014, USFWS determined that approximately 1,864,214 acres of the suitable desert tortoise habitat modeled by Nussear et al. (2009) had been converted to urban land or other "impervious uses" (USFWS 2014). This represented 25% of the total suitable habitat modeled within the Western Mojave Recovery Unit. Based on the model, approximately 5,717,878 acres of intact suitable habitat remains in the recovery unit.

To inform the cumulative effects analysis, the acreages of the cumulative renewable energy projects within the Recovery Unit were added together to develop an aggregate number of acres of potential desert tortoise habitat that would be converted if all of the projects were implemented. An additional 20% was added to this figure to account for other projects listed in the table for which accurate acreage quantities are not practically available. This additional amount is probably an overstatement of the additional acreage that could be converted, but it is used here to ensure that the estimate is not understated. The acreage of the combined renewable energy projects totals 40,166 acres. The addition of 20% to that amount equals 48,199 acres.

As stated previously, the Western Mojave Recovery Unit currently includes approximately 5,717,878 acres of intact suitable habitat, as modeled by Nussear et al. If all of the identified renewable energy projects were implemented and an additional 20% were added to that amount, up to 48,199 acres of suitable habitat would be converted to "impervious surfaces." This represents approximately 0.8% of the remaining intact suitable habitat within the Western Mojave Recovery Unit (i.e., 48,199 acres of 5,717,878 acres). This estimate is considered conservative for two reasons:

- 1) It assumes that all of the projects will be built. This is not likely in reality. For example, of the 14 projects listed in the Beacon Solar Project EIR Cumulative Impacts analysis prepared in 2011, four are not included in the most recent project tabulations maintained by the Kern County Planning Department. It is therefore also probable that some of the projects included in the Table 4.20-1 list will also not be developed.

- 2) All acreage within the list of cumulative project's boundaries is included as converted suitable desert tortoise habitat. This is a conservative approach of calculation, particularly for wind projects, where substantial portions of project sites would remain in a largely undeveloped state with substantial areas of suitable habitat left intact.

The cumulative amount of desert tortoise habitat that would be lost if all of the cumulative projects were implemented would be less than 1% of the available habitat remaining in the Western Mojave Recovery Unit. This is not a substantial amount. Further, each of the listed projects would be required to abide by the same regulations as the action alternatives, which means that each project would be required to avoid impacts whenever possible, mitigate those effects that cannot be avoided in a manner that is consistent with applicable recovery and management plans, and provide other acreage as compensation for lost habitat. These requirements and measures would also be applicable to other federal and state managed biological resources. As such, the action alternatives, in combination with the past, present, and reasonably foreseeable future projects in the Recovery Unit, would not contribute to an adverse, cumulative impact on biological resources.

Climate Change

Global climate change impacts are, by nature, cumulative. Therefore, the analysis presented to evaluate the action alternative's direct impacts related to GHG emissions is applicable to the evaluation of cumulative impacts. As discussed in Section 4.4, both construction and operational air quality emissions from the action alternatives would be well below applicable thresholds. Further, the proposed gen-tie would facilitate the transmission of renewable energy supplies to the larger electric grid. The project, together with other wind and solar projects proposed in the vicinity, would aid in meeting GHG reduction and renewable energy goals and policies adopted by the Department of the Interior and the State of California. Overall, the cumulative effect would be beneficial with respect to GHG emissions and climate change.

Cultural and Historic Resources

As discussed in Section 4.5, background research and an intensive pedestrian survey of the project impact area (area of direct and indirect impacts) identified eight archaeological resources, of which four are historic-era and four are prehistoric. No other cultural or historic resources have been identified within the project impact area. None of the eight archaeological sites will be directly or indirectly impacted by the Project. The cumulative analysis provided below includes a qualitative assessment of the potential data contributions of these sites to important regional research themes in order to evaluate whether impacts to any of these sites, or sites like them inadvertently encountered during construction and operation of the action alternatives or reasonably foreseeable actions, would constitute an adverse cumulative impact to cultural resources.

The four prehistoric archaeological sites identified in the project impact area consist of small lithic scatters containing flaked stone debitage, with smaller amounts of undiagnostic flaked stone tools. Small lithic reduction sites like these, relying on cobbles from the nearby mountains, are the most prevalent prehistoric site type encountered within the Fremont Valley, which is the area of consideration for prehistoric cultural resources based on geomorphologic characteristics, cultural history, and ethnohistoric cultural affiliation with the Kawaiisu people. Prehistoric research themes of importance in this area include placing a prehistoric site within a temporal framework; identifying patterns of subsistence, settlement, and mobility; furthering the understanding of lithic technology and utilization; and documenting regional trade and travel. However, the four prehistoric sites identified in the project impact area do not possess the data potential to contribute to any of these regionally important themes. These sites do not contain organic materials that may provide chronological information through dating, stratified deposits that might suggest duration of use, prehistoric ceramics that may speak stylistically to chronology or cultural affiliation and/or to mobility or trade, or typeable projectile points or other formal diagnostic tools that would aid in dating the sites or refining regional chronology. Further, these sites do not contain obsidian suitable for sourcing, or beads or other ornaments that would be indicative of trade networks or cultural affiliation. The surface lithic scatters identified in the project impact area are common in the Fremont Valley, and these four sites do not contain data that contributes to an understanding of the way prehistoric societies organized their subsistence activities. Consequently, these four sites lack the potential to contribute to regional research themes and questions. Although none of the four prehistoric archaeological sites will be directly or indirectly impacted by the Project, if they, or sites like them, were to be impacted by the action alternatives or reasonably foreseeable actions, the loss of these sites would not be an adverse impact and would not result in a cumulative adverse effect to cultural resources.

The historic-period sites identified in the project impact area consist of refuse scatters and dumps comprised primarily of metal cans, with smaller quantities of glass bottle and jar fragments, ceramic fragments, and sundry metal items. The vast majority of the cultural material is chronologically and functionally undiagnostic, with identifiable materials appearing to date from the early- to mid-20th century. Similar undiagnostic refuse scatters, small dumps and can scatters dating to the early- to mid-20th century are common throughout the Fremont Valley, which is the area of consideration for historic cultural resources based on historic-period use of the valley for transportation, mining and agriculture. In the rural valley, as elsewhere in the broader western Mojave Desert, household refuse was often simply dumped on the surface in a deserted area accessible by car or pick-up truck. Research themes of importance to historic-period sites, and refuse sites in particular, in the Fremont Valley area include identifying patterns of artifact types and refuse disposal to examine evidence of the development of a consumer-oriented culture as well as associations with particular types of activities, time periods, group affiliations such as farmers or railroad workers. However, none of the four historic-period sites contained foundations or other features indicative of the presence of residences, water

conveyance systems, or other structures possibly associated with farming or ranching activities. Further, none contained intact trash deposits or dumps that can be associated with specific occupations or activities, and none contained deposits or diagnostic artifacts that can be definitively associated with particular types of activities or time periods, or with particular groups or occupations. Consequently, these four sites lack the potential to contribute to regional research themes and questions. Although none of these four historic archaeological sites will be directly or indirectly impacted by the project, if they, or sites like them, were to be impacted by the action alternatives or reasonably foreseeable actions, the loss of these sites would not be an adverse impact and would not result in a cumulative adverse effect to cultural resources.

Energy Resources

The direct and indirect effect of the proposed action and alternatives, as discussed in Section 4.6, is limited to physical displacement of land area necessary for other energy projects to operate. Therefore, the geographic scope of the cumulative impact analysis is based on the width of the utility corridor in which the project would be constructed and operated.

The analysis in Section 4.6 comprised both a direct and indirect impact analysis, and a cumulative analysis, of the combined effects of all projects within the corridor. The analysis was based on the Utility Corridor Conflict Analysis conducted by the Applicant, in coordination with other operators or other users of the corridor. The purpose of that analysis was to determine if the alternative gen-tie alignments would encroach upon the existing rights of the adjacent operators, affected the continued functionality of the utility corridor, or affected the remaining capacity for future projects. The analysis concluded that the existing and planned LADWP transmission lines occupy 4.3 percent of the total width of the 2-mile-wide Federal utility corridor in the project area. At 150 feet wide, Alternative 2 would occupy only 1.4 percent of the total width of the 2-mile-wide Section 368 Utility Corridor 23-106. In combination with other ROWs within Utility Corridor 23-106, the combined transmission facilities would allow for the remaining 94.3% of the corridor's 2-mile width to be undeveloped and available for other uses, should they exist in the future. Therefore, Alternative 2 would not contribute to an adverse cumulative impact to other energy-related uses of the corridor. Because of its oblique angle at its southern end, Alternative 3 would occupy 43% of the 2-mile width of Utility Corridor 23-106, which would restrict the number of future uses within the corridor. Therefore, Alternative 3 would contribute to an adverse, cumulative impact to other energy-related uses of the corridor. None of the action alternatives would cross over or inhibit the operation of the future LADWP BRRTP's 230-kV transmission line.

Alternative 4 would be constructed entirely on private land and would have no impact on Utility Corridor 23-106. Therefore, Alternative 4 would not contribute to cumulative impacts of projects within the corridor.

Grazing and Grazing Allotments

The action alternatives that would use public lands are located within the 72,102-acre Hansen Common Grazing Allotment. The project would not have any direct or indirect effect on other allotments, or on any other non-public grazing lands. Therefore, the area of consideration for this resource is the Hansen Common Allotment. *See* BLM NEPA Handbook H-1790-1 at sec.

6.8.3.2. The current acreage of the Hansen Common Allotment, 34,848 acres under the management of the BLM and 37,254 additional acres located on State, private, or other lands, represents the aggregate effect of past projects on the amount of land available for grazing within the allotment, which has been grazed for more than 100 years. In addition to the proposed action, the only other reasonably foreseeable future project that could affect the availability of forage or grazing within the Hansen Common Allotment is the Alta East Wind project.

As discussed in Section 4.8, implementation of the action alternatives would not negatively affect the availability of forage for grazing animals to the extent that a reduction in the number of grazing animals authorized for the allotment would be required. This is because gen-tie lines and their associated roadways occupy relatively small areas, and the resultant loss of forage and grazing capacity would also be small. The permanent loss of potential forage associated with the alternatives would be 2.51 acre for Alternative 2, Option A; 3.23 acre for Alternative 2, Options B and C; and 3.20 acres for Alternative 3. Alternative 4 would not use public lands, and, therefore, no impacts to the Hansen Common Grazing Allotment would occur under that alternative. BLM's analysis of the Alta East Wind Project reached a similar conclusion, with approximately 8 acres of forage lost, which was not enough for BLM to remove this acreage or the associated animal unit months (AUMs) from the allotment. When compared to the overall size of the Hansen Common Allotment (72,102 acres), the combined amount of lost ephemeral forage would be negligible. Existing rights to the Hansen Common Grazing Allotment would continue unimpeded, subject to existing BLM regulations. Although each project would have a minor adverse effect on the land area available for grazing, the combined effect would not be adverse because it would not cause BLM to change its management of the allotment, and would not interfere with operations of the grazing lessee. Therefore, the action alternatives, in combination with the past, present, and reasonably foreseeable future projects in the grazing allotment, would not contribute to an adverse, cumulative impact on livestock grazing.

Noise and Vibration

The area of consideration for this resource is a 1-mile radius from the area included within the proposed action and alternatives. This is approximately the distance for which noise associated with project construction or operation would be audible, and would therefore have direct or indirect effects. Outside of this range, the project would not have direct or indirect effects, and would therefore not contribute to cumulative effects (BLM NEPA Handbook 1790-1 at sec. 6.8.3.2).

Section 4.11 concluded that construction noise associated with the project would not cause direct or indirect effects, because all locations where construction would take place would occur more than 10,000 feet (nearly 2 miles) from any occupied properties, and would be temporary, lasting only for the six month construction period. Helicopter use would be even more limited in duration, lasting only five days. Helicopter use would occur during daylight hours only, per the Kern County Noise Ordinance, and would be routed to avoid overflights over homes and sensitive receptors to the extent feasible. The only other project within 1 mile is the adjacent RE Cinco solar project. Noise impacts associated with construction of both projects could overlap, causing a cumulative noise effect. However, both projects are distant enough from sensitive receptors that no adverse effect would occur. Corona Effect noise from operation of the project would be permanent, and would combine with similar noise from other transmission lines in the utility corridor. However, the level of this noise is expected to be minor and well below Kern County's most restrictive nighttime standard of 45 dBA. Again, the project is distant enough from sensitive receptors that the combined noise effects associated with the project and past, present, and reasonably foreseeable actions are not expected to contribute to an adverse cumulative effect due to noise and vibration.

Paleontological Resources

Similar to the discussion for cultural resources, the analysis of cumulative effects to paleontological resources is complicated by the unknown nature and extent of potential effects to previously unidentified resources. In the case of the proposed action and alternatives, there are no known direct or indirect impacts to paleontological resources. Subsurface work taking place within specified rock units along the gen-tie alignments would be subject to an approved monitoring program, with follow-up actions specified if fossil resources are found. Therefore, the potential for significant direct and indirect effects associated with the project to occur is very low.

However, even though there are no known effects, previously unknown resources may be encountered during subsurface work taking place within all three of the alternative alignments. Older Quaternary alluvium deposits that could be fossil-bearing could be disturbed during the excavation process for all three action alternatives. A similar potential exists for other projects, including the RE Cinco Solar project directly adjacent to the proposed action. Because the potential for impacts to previously unknown resources exists from the proposed action and other projects, there is also a potential for cumulative impacts to those resources.

For the proposed action and other nearby projects, the available data suggests that the potential for significant direct, indirect, and cumulative effects to previously unidentified paleontological resources is very low. Because the potential for impacts exists for any intrusive project implemented within Older Quaternary alluvium deposits, it is standard practice for these projects, whether on BLM land or private land, to be required to follow mitigation measures to monitor for impacts, and to respond to these impacts if any resources are identified. In the event

that previously unknown resources were discovered during project construction, the monitoring plan would require a halt to work in the affected area, followed by assessment of the find by a qualified paleontologist. Therefore, even if previously unidentified resources are encountered, it is likely that response actions would avoid or minimize any direct or indirect impacts to that resource.

Based on the lack of identified resources in the project area, the project would not contribute to a cumulatively adverse effect to known paleontological resources. Based on a similar lack of identified resources on other nearby projects, together with implementation of standard procedures if such resources were discovered during construction, it is highly unlikely that effects of the project on previously unknown paleontological resources would combine with effects of other projects to cause significant cumulative impacts. Any such effects would very likely be identified and mitigated during project construction. Therefore, the action alternatives, in combination with the past, present, and reasonably foreseeable future projects in the area, would not contribute to an adverse cumulative impact on paleontological resources

Visual Resources

The area of consideration for visual resources is the project viewshed, or the area from which the project would be visible. Outside of the viewshed, the project would not have any direct or indirect effects, so would not contribute to any cumulative visual effects.

Section 3.19.1 discusses the characterization of the current visual conditions within the viewshed, which includes the aggregate impacts of past and current projects. BLM's visual resource inventory classification of the viewshed is derived from a combination of the viewshed's scenic quality, the view sensitivity levels, and the distance from the viewers. BLM's inventory of the viewshed concluded that the surrounding scenic quality was classified as BLM Class C scenic quality, or a "common area where characteristic features have little variation in form, line color, or texture in relation to the surrounding region" (BLM 1986a). Beyond this scenic component, several human modifications encroach on the project area, most notably SR-14, the existing Barren Ridge transmission corridor, and the LADWP Barren Ridge Switching Station. Both recent and historically cleared ROWs add to the visual evidence of human-made interventions on the land, and all provide moderate to strong sources of existing visual contrast in the landscape. Based on the combination of scenic quality, sensitivity level, and distance-zone overlays, the project area was determined, on an interim basis, to be consistent with that of a BLM Class III landscape. As such, the anticipated BLM VRM objective of this class would be "to partially retain the existing character of the landscape. Changes to the landscape character may begin to attract attention, but should not dominate the visual setting" (BLM 1986a).

The analysis of direct and indirect visual effects in Section 4.18-2, as well as the more detailed information and simulations provided in Appendix H, concluded that the addition of Alternatives

3 and 4 to this existing cumulative scenario would not be consistent with BLM Class III VRM objectives for the area. This is largely due to their proximity to viewers on SR-14 (less than 0.5 mile) and their separation from existing and similar transmission structures. Alternatives 2A, 2B, and 2C would be consistent with BLM Class III VRM objectives since these alternative alignments would be located farther away from SR-14 (greater than 0.5 mile) and because of their proximity to existing and similar transmission structures. The effect of their greater distance from sensitive viewers and their proximity to existing transmission lines would create low levels of contrast, and, thus, render their overall visual effect as consistent with Class III objectives.

All of the action alternatives, in combination with the past, present, and reasonably foreseeable future projects in the viewshed, would contribute to an unavoidable, adverse, cumulative impact on visual resources. This is the case for any viewshed in which transmission and renewable energy projects are developed. The contribution of Alternative 2 to this cumulative effect would be lower than that of Alternatives 3 and 4, for reasons discussed above. Alternative 2 would still conform to the BLM Class III VRM objectives, while Alternatives 3 and 4 would not.

4.21 Other NEPA Considerations

Unavoidable Adverse Effects

The analysis within this EA has found, with one exception, that for each issue analyzed, none of the action alternatives would result in an unavoidable adverse effect. The exception to this finding is for visual resources. For that issue, the analysis found that implementation of Alternatives 3 and 4 would result in an adverse effect for which no mitigation to reduce that effect is available. This is because these alternatives would introduce a dominant visual element to the visual environment in proximity to sensitive viewers. This effect would be inconsistent with VRM objectives for the area. As such, implementation of either Alternative 3 or Alternative 4 would result in an unavoidable adverse effects to visual resources.

Short-Term Benefits vs. Long-Term Productivity

The benefits of the gen-tie project would be realized throughout the life of the project through the transmission of renewable electric energy from the point of production to eventual users. Benefits of the project would include the substitution of electricity produced from non-renewable sources (i.e., the burning of fossil fuels) with electricity produced from a renewable energy source at the private lands solar facility. Numerous benefits would derive from this substitution, some of which would have long-term benefits beyond the life of the project, such as lessening of GHGs that would have otherwise accumulated in the atmosphere through the burning of fossil fuels.

During the life of the project, the existing productivity of the lands that would be impacted by the gen-tie would be lost. The amount of lands that would be impacted would vary based on the alternative. Approximately 2.51 acres of land would be permanently impacted under Alternative 2A; approximately 3.23 acres under Alternatives 2B and 2C; approximately 3.2 acres of land

would be impacted under Alternative 3; and 8.8 acres of land would be impacted under Alternative 4. The current productive uses of these lands include plant and wildlife habitat, ephemeral grazing, recreation, and visual resources. These existing uses would be displaced during the life of the project. This displacement, however, would be offset by the aforementioned benefits of the gen-tie, some of which would outlive the project itself.

Irretrievable Commitment of Resources

Physical resources would be used by the gen-tie, including the use of steel and/or wood for the transmission structures, concrete for the structural foundations, and a variety of metals and other materials for the conductors. Many of these materials, particularly the metal components of the gen-tie, have value as scrap, and would most likely be recycled or reused upon decommissioning of the project. As such, only a portion of the physical materials that would be used can be considered irretrievably committed or permanently lost.

Water would be used for concrete mixing and dust abatement during construction, and water would also be used during operation for herbicide mixing. For the most part, the use of this water would be considered irretrievable once the beneficial purposes for which it would be used were completed.

Fossil fuel would be burned and permanently lost during construction of the gen-tie, and limited amounts of fossil fuel would be similarly lost during operation and maintenance activities over the life of the project. This fossil fuel, once used, would be irretrievable.

5. TRIBES, AGENCIES, ORGANIZATIONS, AND INDIVIDUALS CONSULTED

5.1 Introduction

This section describes the consultation, coordination, and public participation activities that have occurred or are on-going for the proposed project. A number of consultations have been undertaken to provide guidance on the relationship between BLM as Lead Agency for the EA and other agencies. These are summarized here.

5.2 Tribal Consultation

The BLM is responsible for consultation with Native American tribes to identify sacred sites and other places of traditional religious and cultural importance, and to incorporate appropriate mitigation measures in the event that such sites are located during construction. Consultation with tribes has been initiated and will continue throughout the NEPA and Section 106 compliance processes.

In addition to the BLM's consultation, the Applicant contacted the California Native American Heritage Commission (NAHC) about any issues of cultural concern regarding the project area. In particular, inquiry was made as to whether there were any Traditional Cultural Properties, Sacred Sites, resource collecting areas, or any other areas of concern in the project area. The NAHC conducted a Sacred Lands File search of the project APE and found that Native American cultural resources were not identified within the inventory. However, the NAHC is aware of recorded archaeological sites and Native American cultural resources in proximity to the APE. The NAHC suggested consultation with the following tribes and interested Native American groups, who were each contacted:

- Kawaiisu Tribe of Tejon Reservation
- Kern Valley Indian Council
- Kitanemuk and Yowlumne Tejon Indians
- San Fernando Band of Mission Indians
- San Manuel Band of Mission Indians
- Tejon Indian Tribe
- Tubatulabals of Kern County
- Tule River Indian Tribe

The BLM hosted a pre-application meeting for the proposed project with tribal representatives and other interested parties at the Jawbone Station Visitor's Center on March 24, 2014. Invitation letters to this meeting are included as Appendix A. Participants included Native American tribal representatives, USFWS representatives, Caltrans representatives, and the Cantil Water District representatives. Issues raised during the meeting included the following:

- Caltrans ROW concerns and requirements relating to SR-14.
- Native American participation during project development, cultural resources surveys, and construction.
- Desert tortoise protection and conservation activities associated with the project.

5.3 U.S. Fish and Wildlife Service Consultation

The BLM requested formal consultation under Section 7 of the ESA with USFWS for gen-tie-related effects to desert tortoise. A BA analyzing the project's effects to desert tortoise was prepared and submitted to USFWS. Upon conclusion of formal consultation, USFWS will issue its Biological Opinion concerning the project's effect to desert tortoise.

5.4 California Department of Fish and Wildlife Coordination

CESA review and approval will be required for impacts to State-listed species, including desert tortoise and Mohave ground squirrel. CDFW has been consulted in the analysis of all CESA-listed species and California SSCs. The Applicant has applied for the required incidental take permit under Section 2081 of the California Fish and Game Code.

5.5 U.S. Army Corps of Engineers Coordination

Each of the action alternative gen-tie alignments would cross Pine Tree Canyon Wash. The wash eventually dissipates into the landscape prior to reaching Koehn Lake (an isolated playa lake), and does not connect with other surface aquatic features. Therefore, this desert aquatic feature is considered "geographically isolated" and is, thus, non-jurisdictional waters of the U.S. according to USACE. A Jurisdictional Determination confirming this non-jurisdictional status has been provided by USACE (see Appendix H). USACE determined that Pine Tree Canyon Wash and other aquatic features that create a confluence with the wash present "geographic isolation" (i.e., isolated, non-jurisdictional waters of the U.S.). As such, further coordination with USACE is not required.

5.6 Regional Water Quality Control Board Coordination

The project Applicant conducted a site visit with the Regional Water Quality Control Board, and submitted a permit application for coverage for potential impacts to waters of the State. The application process is ongoing. Results of the application, as well as any permits obtained from

the Regional Water Quality Control Board, will be conveyed to the BLM prior to the execution of a Decision Record for the project.

5.7 Section 106 Consultation

The BLM and the SHPO have entered into a programmatic agreement that delegates authority for cultural resources management to the BLM. This agreement usually precludes the requirement for BLM to consult with the SHPO through the standard Section 106 consultation process. However, it is BLM's policy that, for renewable-energy-related projects, the BLM will coordinate and consult directly with the SHPO and seek SHPO's concurrence concerning findings of effects for cultural resources. A Cultural Resources Assessment was prepared for the project and submitted to the SHPO. The assessment found that by implementing the proposed mitigation, the project would affect, but not adversely affect, cultural resources. The BLM's findings have been conveyed to the SHPO, which has been asked to concur with this finding.

6. LIST OF PREPARERS

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BLM personnel from the Renewable Energy Coordinating Office (RECO) at the California Desert District Office were involved in the preparation and review of this EA and are listed here.

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