

Staff Assessment and  
Draft Environmental Impact Statement

**CALICO  
SOLAR PROJECT**

Application For Certification (08-AFC-13)  
San Bernardino County



**U.S. BUREAU  
OF LAND  
MANAGEMENT  
and  
CALIFORNIA  
ENERGY  
COMMISSION**

**STAFF REPORT**

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# CALICO SOLAR PROJECT

## STAFF ASSESSMENT AND DRAFT ENVIRONMENTAL IMPACT STATEMENT AND DRAFT CALIFORNIA DESERT CONSERVATION AREA PLAN AMENDMENT

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# EXECUTIVE SUMMARY

Jim Stobaugh and Christopher Meyer

## INTRODUCTION

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Calico Solar, LLC (Applicant) is seeking approval to construct and operate the Calico Solar Project (formerly the Stirling Energy Systems Solar One Project) and its ancillary facilities (Calico Solar Project). The Applicant is a private party that is a wholly owned subsidiary of Tessera Solar. The main objective of the Calico Solar Project is to provide clean, renewable, solar-powered electricity to the State of California. The electricity from the Calico Solar Project will assist the State in meeting its objectives as mandated by the California Renewable Portfolio Standard (RPS) Program and the California Global Warming Solutions Act. The Calico Solar Project will also address other state and local mandates adopted by California's electric utilities for the provision of renewable energy.

Southern California Edison (SCE) selected the Calico Solar Project to help meet its objectives under the legislative requirements of the RPS Program through a least-cost, best-fit competitive solicitation. The Applicant and SCE have entered into a 20-year Power Purchase Agreement (PPA) for the provision of renewable electricity. This PPA will help SCE meet both its statutory mandate to purchase at least 20% of its electric power from renewable resources by 2010 and its future electricity requirements. The California Public Utilities Commission (CPUC) approved the PPA on October 27, 2005.

The Applicant submitted an Application for Certification (AFC) to the California Energy Commission (Energy Commission) for the proposed project on December 2, 2008. (The application was originally submitted by SES Solar One, LLC, SES Solar Three, LLC and SES Solar Six, LLC for the SES Solar One Project. In January 2010, the above entities merged into Calico Solar, LLC, and the name of the SES Solar One Project was changed to the Calico Solar Project.) The Energy Commission is the lead State agency responsible for evaluating the environmental effects of project and for complying with the California Environmental Quality Act (CEQA) for project related discretionary actions by the Energy Commission.

The project proposes the use of land managed by the United States Department of the Interior, Bureau of Land Management (BLM); therefore the Applicant has submitted a request for a right-of-way (ROW) grant to the BLM. In addition, the BLM will decide whether to approve, approve with modification or deny a ROW grant to the Applicant for the Proposed Calico Solar Project. The BLM will also consider amending the California Desert Conservation Area (CDCA) Plan in this analysis. If the BLM decides to grant a ROW, the BLM would also amend the CDCA Plan as required for the Proposed Action, Action Alternative, or No Action Alternative as required. The BLM is the federal lead agency for the evaluation of project effects and compliance of the proposed project with the requirements of the National Environmental Policy Act (NEPA) related to possible BLM discretionary actions related to the ROW grant request.

## **PROPOSED PROJECT**

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### **Project Location and Description**

The Applicant intends to develop an electric-generating facility with a nominal capacity of 850 megawatts (MW) using concentrated solar power. The Calico Solar Project would be constructed on an approximately 8,230-acre (ac) site in the Mojave Desert in San Bernardino County, California. The site is approximately 37 miles east of Barstow, 174 miles east of Newberry Springs, 57 miles northeast of Victorville, and approximately 115 miles east of Los Angeles (straight line distances). The Calico Solar site is located on BLM managed lands. Key features of the proposed project are described briefly below and in more detail in the following sections:

- The electric-generating facility would include the construction of a new 230-kilovolt (kV) substation approximately in the center of the project site, an operation and administration building, a maintenance building, and a substation building.
- The Calico Solar Project would be constructed in two phases: Phase I would consist of up to 11,000 SunCatchers configured in 1.5-MW solar groups of 60 SunCatchers per group. The total net nominal generating capacity of Phase 1 is 275 MW described as Southern California Edison's (SCE) Early Interconnection Option. Phase I would require approximately 2,320 acres. The renewable energy from Phase I will be transmitted via the existing 220-kV SCE Lugo to Pisgah transmission line. The Calico Solar Project will be connected to the grid at the SCE Pisgah Substation via a 2.0-mile-long, 230-kV interconnection transmission line. Approximately 739 feet of this connecting transmission line is outside of the project site. Phase I would require only minor upgrades to the Pisgah Substation and no upgrades to the existing Pisgah to Lugo transmission line.
- Phase II would expand the Calico Solar Project to a total of 34,000 SunCatchers configured in 1.5-MW solar groups of 60 SunCatchers each, with a total net generating capacity of both phases of 850 MW. Phase II would require approximately 5,910 acres of the project site. The 575-MW Phase II would consist of approximately 23,000 SunCatchers. The additional 575 MW generated in Phase II would require new transmission capacity within the grid. This is anticipated to be provided by the proposed 500-kV Pisgah to Lugo transmission line (assumed to be a project independent of the Calico Solar Project). This upgrade is described as SCE's Full Build-out Option. The construction and operation of Phase II is contingent on the approval and development of transmission line.

### **Solar Power Plant Equipment and Facilities**

The Calico Solar Project would use the proprietary SES SunCatcher™ technology. Each SunCatcher consists of a 25-kilowatt (kW) solar power generating system. The system is designed to track the sun automatically and to focus solar energy onto a Power Conversion Unit (PCU), which generates electricity. The system consists of an approximately 38-foot-diameter solar concentrator dish that supports an array of curved glass mirror facets. These mirrors collect and focus solar energy onto the heat exchanger of the PCU. The PCU converts the solar thermal energy into electricity via a Solar Stirling Engine designed to convert solar power to rotary power through a thermal conversion process. Each SunCatcher would operate independently and would generate grid-quality electricity.

Power generated by groups of 60 SunCatchers would be collected through a 600-volt (V) underground power collection system. This collection system would combine the output from the units and connect each 1.5-MW group to a generator step-up unit (GSU) transformer with an output voltage of 34.5 kilovolt (kV). The output from the GSUs would be grouped into 3-, 6-, and 9-MW groups, which would be connected via 34.5-kV underground collection circuits to 48- or 51-MW, 34.5-kV overhead collection circuits, each of which would be connected directly to the on-site collection substation. The on-site collection substation would be connected via a 230-kV, double-circuit overhead interconnection transmission line for delivery of generated electricity to the SCE Pisgah Substation, where the interconnection to the California Independent System Operator (CAISO)-controlled grid would take place.

The Calico Solar Project includes construction and operation of an on-site substation, which would include transformers, circuit breakers, metering, and other protection required to connect the project to the SCE Pisgah Substation. The Calico Solar Project interconnect transmission system would require construction of approximately 2.0 miles of double-circuit 230-kV transmission line to transmit the electricity generated on the project site to the SCE transmission facilities.

Related permanent facilities on the project site will include a Main Services Complex, which would be in a central location on site to provide for efficient access routes for maintenance vehicles servicing the SunCatcher solar field. The Main Services Complex would include the following:

- **Operation and Administration Building.** The project administration offices and personnel facilities would be in this one-story building. This building would also contain meeting and training rooms, engineering offices, a visitor's room, and support services. The project maintenance facilities, shop, and warehouse storage will be adjacent to the operation and administration building.
- **Maintenance Building.** The maintenance building would contain maintenance shops and offices, PCU rebuild areas, maintenance vehicle servicing bays, chemical storage rooms, the main electrical room, and warehouse storage for maintenance parts to service the SunCatchers.
- **Water Treatment System.** The water treatment structure would be southeast of the Main Services Complex. The water treatment structure would house water treatment equipment and safe storage areas for water treatment chemicals. A motor control center for the water treatment equipment and pumps will be located within this structure. Two wastewater evaporative ponds designed for wastewater containment would be located south of the water treatment structure.
- **Yard Tanks.** The yard tanks would be at-grade steel tank reservoirs and/or polyethylene tanks. The water treatment system would include a raw water tank with a permanent booster pump station, a potable water treatment system, ground-set steel or polyethylene potable water and a fire water storage tank, a booster pump station to accommodate potable water needs and fire-flow requirements, a disinfection system, a demineralized water treatment system for mirror washing water, a polyethylene storage tank for demineralized water storage, chemical storage, reject water and sludge disposal and evaporation ponds, and various support piping, valves, and miscellaneous equipment to support the system. All tanks, foundations,

and piping connections would be designed and constructed to the appropriate standards for contents and seismic zone considerations.

- **Control Building.** The control building would be near the substation. This building would contain relay and control systems for the substation and the operations control room.
- **Utilities and Services for Ancillary Facilities and Structures.** A diesel powered fire water pump and a diesel operated standby power generator would be adjacent to the operation and administration building. Electric service for the Main Services Complex would be obtained from SCE. Electric power will be provided via overhead service from an SCE overhead distribution line located. Communications service will be provided via an overhead service from existing underground communications lines located on the north side of the railroad located north of Interstate 40.

### **Construction Logistics Area**

The Applicant proposes using one temporary construction logistics area for staging contractor equipment and trailers, assembly yards, storage of materials, equipment laydown and wash area, construction personnel parking, and assembly areas for SunCatchers. The temporary facilities and structures in that construction logistics area would include:

- **Assembly Building.** SunCatcher assembly would be performed in one temporary assembly building in the construction logistics area. This building would be removed after all of the SunCatchers have been assembled and installed. The assembly building would be beside the Main Services Complex.
- **Transport trailer storage.** Storage for trailers would be provided south of the assembly buildings in a storage facility that will accommodate 75 to 100 trailers, maintaining a 3- to 5-day inventory of SunCatcher parts during the assembly phase. These trailers would be removed and salvaged after all of the SunCatchers have been installed.
- **Laydown Area.** One construction laydown area would be provided: immediately south of the Main Services Complex.

Construction of the Calico Solar Project is expected to begin in late 2010 and would take a total of approximately 44 months for full project construction. The construction period may not be continuous. However, renewable power from the project could come online much earlier than 44 months after the start of the project. As groups of SunCatchers are constructed and become operational, their renewable power would immediately be supplied to the grid.

### **Water Supply and Discharge**

The Applicant proposes to use groundwater for project construction and operation obtained from a well located in Cadiz, California. Cadiz is located approximately 64 miles southeast of the proposed project site within the Cadiz Valley groundwater basin of the Colorado River Hydrologic Region.

The Applicant is also currently drilling wells and conducting aquifer testing to further assess groundwater conditions at the project site.

The Applicant proposes to use treated groundwater for potable needs. The groundwater would first be demineralized, then stored in a designated storage facility equipped with chemical dosage for disinfection. This treated potable water would be available at the Main Services Complex and may be piped to the Satellite Service Complex. If potable water is not piped to the Satellite Services Complex, bottled water would be made available.

### **Fire Protection**

The Main Services Complex would include an approximately 175,000-gal water tank for mirror washing and fire suppression and control. Portable fire extinguishers would be located at strategic locations throughout the site. The fixed fire protection system would provide a wet, water-based sprinkler fire suppression system for the buildings. Employees would be given fire safety training, including instruction in fire prevention, the use of portable fire extinguishers and hose stations, and the reporting of fires to the local fire department.

### **Access Roads and Maintenance Paths**

Arterial roads, unpaved perimeter roads, and unpaved access routes would be constructed on the Calico Solar Project site. Site access during the construction phase will be provided from Hector Road, which has an existing interchange from I-40 at the southwest portion of the site.

### **Site Security and Fencing (During Construction and Operations)**

The 8,230-acre project site would be fenced, excluding the private parcels of land designated as not a part of the project. Access to the federal land managed by the BLM would be authorized under a ROW grant. Operations site security would consist of controlled access gates, perimeter security fencing, 24-hour site security monitoring via closed-circuit television and intercom, and regular vehicular patrols. Construction security would consist of fencing installed around the perimeter of the project site at the start of construction, and gated entrances and exits.

### **Stormwater Management Approach**

The project site would be developed utilizing the existing land features without undergoing major grading operations. Off-site flow would be intercepted prior to entering the project site using large debris basins located at the toe of each mountainous drainage basin near the northern project boundary. These project debris basins are designed to retain storm water discharge and associated debris resulting from a 100-year storm. In addition to intercepting debris from the mountains, the proposed debris basins will also provide for peak runoff attenuation of the surface flows. The design attempts to protect the project site from flooding, sediment deposition, and scour. Onsite runoff will be intercepted in detention basins constructed onsite and sized to retain the 100-year onsite runoff and debris flows. The onsite basins are designed to retain 4-years of average sediment accumulation for the area or subarea they are designated to serve.

A Storm Water Pollution Prevention Plan (SWPPP) would be prepared. Site drainage during construction would follow pre-development flow patterns, with ultimate discharge to property boundary. Low-flow culverts consisting of a small diameter storm drain with

a perforated stem pipe will be installed for sediment control and to provide for storm peak attenuation. The design and location of the detention basins would depend upon the Proposed Action or Action Alternative selected.

### **Facility Operation and Maintenance**

The Calico Solar Project would be an “as-available” resource. Therefore, the project would operate anywhere between a minimum of approximately 18 MW net when the first SunCatcher units are interconnected to the transmission grid during the construction period to 850 MW on completion of construction. The capability for independent operation of all 34,000 units would give maximum flexibility in operations. The Calico Solar Project is expected to have an annual availability of 99%.

The Calico Solar Project would operate approximately 3,500 hours annually. The number of available operating hours would depend on the availability of the sun’s energy at greater than 250 watts per square meter. SunCatchers would be unable to generate electricity when the sun’s energy is below 250 watts per square meter in the early morning or late evening hours and when cloud cover limits the sun’s energy for power generation. Also, SunCatchers would be unable to generate electricity during daylight hours when the wind speed exceeds 35 miles per hour (mph), as SunCatchers will be stowed in a safe de-track position at and above this wind speed to prevent damage. The Applicant anticipates that the Calico Solar Project would be operated with a staff of approximately 164 full-time employees. The project would operate 7 days per week, generating electricity during daylight hours when solar energy is available. Maintenance activities would occur 7 days a week, 24 hours a day to ensure SunCatcher availability when solar energy is available. Maintenance activities would include SunCatcher mirror washing. The daily average water requirement for SunCatcher mirror washing under regular maintenance routines would be approximately 10.4 gal of raw water per minute.

### **Waste Management**

Wastewater generated at the Main Services Complex would be discharged into a septic system with

sanitary leach fields, and would be designed in accordance with applicable Laws, Ordinances, Regulations, and Standards (LORS), including those of San Bernardino County, the Regional Water Quality Control Board (RWQCB), and the California Department of Health Services (CDHS). Disposal of clear liquids would be conveyed to on-site sanitary leach fields, and sewer sludge would be pumped and disposed of by trucks to an approved offsite disposal facility.

Solid waste from the Calico Solar Project water treatment system would be trucked to an appropriate off-site landfill from two evaporation ponds as a non-hazardous, low-moisture cake. An estimated 60,000 pounds (lbs) per year of salt cake would be trucked off-site to an appropriate landfill or recycled. The full 60,000 lbs would be scheduled for removal at the end of the evaporation process. Approximately 1.5 loads would be required per year.

Non-hazardous wastes generated during construction and operation includes scrap wood, concrete, steel/metal, paper, glass, scrap metals and plastic waste. All non-hazardous

wastes would be recycled to the extent possible and non-recyclable wastes would be collected by a licensed hauler and disposed in a Class III solid waste disposal facility. Hazardous wastes would be recycled to the extent possible and disposed in either a Class I or II waste facility as appropriate. All operational wastes produced at the Calico Solar Project would be properly collected, treated (if necessary), and disposed of at either a Class I or II waste facility as appropriate.

Hazardous materials used during facility construction and operations would include paints, epoxies, grease, transformer oil, and caustic electrolytes (battery fluid). Several methods would be used to properly manage and dispose of hazardous materials and wastes. A Hazardous Materials Management Program

(HMMP) would be developed and implemented during the project construction and operation phases. At a minimum, the HMMP would include procedures for hazardous materials handling, use and storage; emergency response; spill control and prevention; employee training; and recordkeeping and reporting.

### **Project Decommissioning**

Project closure can be temporary or permanent. Temporary closure is defined as a shutdown for a period exceeding the time required for normal maintenance, including closure for overhaul or replacement of the major components, such as major transformers, switchgear, etc. Causes for temporary closure include inclement weather and/or natural hazards (e.g., winds in excess of 35 mph, or cloudy conditions limiting solar insolation values to below the minimum solar insolation required for positive power generation, etc.), or damage to the Project from earthquake, fire, storm, or other natural acts. Permanent closure is defined as a cessation in operations with no intent to restart operations owing to Project age, damage to the Project that is beyond repair, adverse economic conditions, or other significant reasons.

In the unforeseen event that the Calico Solar Project is temporarily closed, a contingency plan for the temporary cessation of operations would be implemented. The contingency plan would be followed to ensure conformance with applicable LORS and to protect public health, safety, and the environment. The plan, depending on the expected duration of the shutdown, may include the draining of chemicals from storage tanks and other equipment and the safe shutdown of equipment.

The planned life of the Calico Solar Project is 40 years; however, if the Calico Solar Project is still economically viable, it could be operated longer. It is also possible that the Calico Solar Project could become economically noncompetitive before 40 years have passed, resulting in early decommissioning. When the Calico Solar Project is permanently closed, all the project equipment, facilities, structures and appurtenant facilities must be removed from the site. Because the conditions that would affect the decommissioning decision are largely unknown at this time, these conditions would be presented to the CEC, the BLM, and other applicable agencies in a detailed decommissioning plan prior to the planned permanent decommissioning.

## ALTERNATIVES

In addition to the proposed Calico Solar Project, two other Build Alternatives on the same general site and three No Project/No Action Alternatives are also evaluated in detail in this environmental document. **Executive Summary Table 1** summarizes the acreages and MW production of the two build alternatives and **Executive Summary Table 2** describes the three No Project/No Action Alternatives. The two build alternatives include a Reduced Acreage Alternative, and the Avoidance of Donated and Acquired Lands Alternative that would avoid donated lands and lands acquired with federal Land and Water Conservation Funds. The No Project/No Action Alternatives all consider not approving the Calico Solar Project and either amending or not amending the CDCA Plan as required regarding land use designations for the site.

**Executive Summary Table 1**  
**Summary of the Build Alternatives**

<b>Build Alternative</b>	<b>Megawatts</b>	<b>Acres (approximate)</b>	<b>SunCatchers</b>
Calico Solar Project	850	8,230	34,000
<b>Reduced Acreage Alternative:</b> proposes construction and operation of a 2,600-acre facility using the SunCatcher technology. On-site facilities would be similar to the Calico Solar Project. This alternative would require the SCE 275-MW Early Interconnection Option upgrade.	275	2,600	11,000
<b>Avoidance of Donated and Acquired Lands Alternative:</b> developed to avoid impacts to donated and LWCF-acquired lands on the project site. The boundary of this alternative would be similar to the site boundary of the proposed action less donated and acquired land parcels. This alternative would require the SCE Full Build-out Option upgrade.	720	7,050	28,800

**Executive Summary Table 2  
Summary of the No Project/No Action Alternatives**

<b>No Project/No Action Alternative</b>	<b>Calico Solar Project?</b>	<b>Amendment to the CDCA Plan?</b>
1) No Approval of the Calico Solar Project and no CDCA Plan Amendment	Calico Solar Project not approved: no solar energy power generation project would be constructed on the project site	No CDCA Plan Amendment: BLM would continue to manage the site consistent with the existing land use designation in the CDCA Plan for the site
2) No Approval of the Calico Solar Project and Amendment of the CDCA Plan to Allow Solar Energy Power Generation Projects on the Project Site	Calico Solar Project not approved: solar energy power generation projects could be constructed on the site (as a result of the CDCA Plan amendment)	Yes: BLM would amend the CDCA Plan to allow for solar energy power generation projects on the site
3) No Approval of the Calico Solar Project and BLM Amends the CDCA Plan to Not Allow Any Solar Energy Power Generation Projects on the Project Site	Calico Solar Project not approved: no solar energy power generation projects could be constructed on the site (as a result of the CDCA Plan amendment)	Yes: BLM would amend the CDCA Plan to not allow any solar energy power generation projects on the project site

**Comparison of the Alternatives**

**Executive Summary Table 3** describes the ability of the Calico Solar Project, the two build alternatives, and the three No Project/No Action Alternatives to meet the defined project purpose and objectives.

**Executive Summary Table 3  
Ability of the Alternatives to Meet the Project Purpose and Objectives and Site Criteria**

Project Purpose and Objectives	Calico Solar Project	275-MW Reduced Acreage Alternative	Avoidance of Donated and Acquired Lands Alternative	No Approval of Calico Solar Project and No CDCA Plan Amendment	No Approval of Calico Solar Project and Amendment of CDCA Plan to Allow Solar Energy Power Generation Projects on Project Site	No Approval of Calico Solar Project and BLM Amends CDCA Plan to Not Allow Any Solar Energy Power Generation Projects on Project Site
Provide clean, renewable, solar-powered electricity and to assist SCE in meeting its obligations under California's Renewable Portfolio Standard Program (RPS)	Yes	Yes	Yes	No	Potentially	No
Assist SCE in reducing its greenhouse gas emissions as required by the California Global Warming Solutions Act	Yes	Yes	Yes	No	Potentially	No
Provide up to 850 MW of renewable electric capacity under a 20-year PPA with SCE	Yes	No	No	No	Potentially	No
Contribute to the 20% renewables RPS target set by California's governor and legislature	Yes	Yes	Yes	No	Potentially	No
Assist in reducing greenhouse gas emissions from the electricity sector	Yes	Yes	Yes	No	Potentially	No
Contribute to California's future electric power needs	Yes	Yes	Yes	No	Potentially	No

Project Purpose and Objectives	Calico Solar Project	275-MW Reduced Acreage Alternative	Avoidance of Donated and Acquired Lands Alternative	No Approval of Calico Solar Project and No CDCA Plan Amendment	No Approval of Calico Solar Project and Amendment of CDCA Plan to Allow Solar Energy Power Generation Projects on Project Site	No Approval of Calico Solar Project and BLM Amends CDCA Plan to Not Allow Any Solar Energy Power Generation Projects on Project Site
Assist the California Independent System Operator (CAISO) in meeting its strategic goals for the integration of renewable resources, as listed in its Five-Year Strategic Plan for 2008-2012 (CAISO 2007)	Yes	Yes	Yes	No	Potentially	No
To construct and operate a 850 MW renewable power generating facility in California capable of selling competitively priced renewable energy consistent with the needs of California utilities	Yes	No	No	No	Potentially	No
To locate the facility in areas of high solarity with ground slope of less than 5%	Yes	Yes	Yes	No	Potentially	No

## **PUBLIC AND AGENCY COORDINATION**

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The Energy Commission's CEQA-equivalent process and the BLM's NEPA process provide opportunities for the public and other agencies to participate and consult in the scoping of the environmental analysis of this proposed project, and in the evaluation of the technical analyses and conclusions of that analysis. The following subsections describe the status of these outreach efforts for the proposed Calico Solar Project. These activities are also described in the *Final Scoping Report*.

### **Agency Coordination**

The Energy Commission certification is in lieu of any permit required by state, regional, or local agencies and by federal agencies to the extent permitted by federal law (Public Resources Code, Section 25500). However, both the Energy Commission and BLM typically seek comments from and work closely with other regulatory agencies that administer LORS that may be applicable to a proposed project. The following paragraphs describe the agency coordination that has occurred through this joint SA/EIS process for the proposed Calico Solar Project.

#### **United States Army Corps of Engineers**

The United States Army Corps of Engineers (USACE) has jurisdiction to protect water quality and wetland resources under Section 404 of the Clean Water Act. Under that authority, USACE reviews proposed projects to determine whether they may impact such resources, and/or be subject to the requirements for a Section 404 permit. Throughout the SA/DEIS process, the Energy Commission, BLM, and the Applicant have provided information to the USACE to assist them in making a determination regarding their jurisdiction and need for a Section 404 permit. No jurisdictional determination has yet been made.

#### **United States Fish and Wildlife Service**

The United States Fish and Wildlife Service (USFWS) has jurisdiction to protect threatened and endangered species under the federal Endangered Species Act (ESA). Formal consultation with the USFWS under Section 7 of the ESA is required for any federal action that may adversely affect a federally listed species. The site is known to be occupied by desert tortoise. The desert tortoise is currently listed as threatened under the federal ESA and state ESA.

#### **State Water Resources Control Board/Regional Water Quality Control Board**

The Regional Water Quality Control Board (RWQCB) has the authority to protect surface water and groundwater. Throughout the SA/DEIS process, the Energy Commission, BLM, and the Applicant have invited the RWQCB to participate in public scoping and workshops, and have provided information to assist the agency in evaluating the potential impacts and permitting requirements of the proposed project.

#### **California Department of Fish and Game**

The California Department of Fish and Game (CDFG) have the authority to protect water resources through regulation of modifications to streambeds, under Section 1602 of the

Fish and Game Code. The Energy Commission, BLM, and the applicant have provided information to CDFG to assist in their determination of the impacts to streambeds, and identification of permit and mitigation requirements. The CDFG also has the authority to regulate potential impacts to species that are protected under the California Endangered Species Act (CESA).

### **San Bernardino County**

The revised Calico Solar Project site contains no private land under the jurisdiction of San Bernardino County (County). The Energy Commission and BLM provided opportunities during scoping for the County to provide input to the environmental technical studies for the project.

### **Public Coordination**

The Energy Commission's CEQA-equivalent process and the BLM's NEPA process provide opportunities for public participation in the scoping of the environmental analysis, and in the evaluation of the technical analyses and conclusions of that analysis. For the Energy Commission, this outreach program is primarily facilitated by the Public Adviser's Office (PAO). As part of the coordination of the environmental review process required under the Memorandum of Understanding (MOU) between the Energy Commission and the BLM California Desert District, the Energy Commission and BLM have jointly held public meetings and workshops which accomplish the public coordination objectives of both agencies.

The PAO's public outreach is an integral part of the Energy Commission's AFC review process. The PAO reviewed information provided by the Applicant and also conducted its own outreach efforts to identify and locate local elected and certain appointed officials, as well as "sensitive receptors" (including schools, community, cultural and health facilities and daycare and senior-care centers, as well as environmental and ethnic organizations). Those agencies and individuals that provided comments concerning the project have been considered in staff's analysis. This SA/DEIS provides agencies and the public with an opportunity to review the Energy Commission's staff's analysis of the proposed project. Comments received on this SA/DEIS will be taken into consideration in preparing the subsequent project documents, including the Supplemental SA/Final EIS.

The AFC, this SA/DEIS, and other project documents are located on the Energy Commission's website at <http://www.energy.ca.gov/sitingcases/calicosolar/index.html>.

## **STAFF'S ASSESSMENT**

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Each technical area section of this SA/DEIS contains a discussion of the project setting, impacts, and where appropriate, mitigation measures and Conditions of Certification. The SA/DEIS includes the staff's assessment of:

- the environmental setting of the proposal;
- impacts on public health and safety, and measures proposed to mitigate these impacts;
- environmental impacts, and measures proposed to mitigate these impacts;

- the engineering design of the proposed facility, and engineering measures proposed to ensure the project can be constructed and operated safely and reliably;
- project closure;
- project alternatives;
- compliance of the project with all applicable laws, ordinances, regulations and standards (LORS) during construction and operation;
- environmental justice for minority and low income populations, when appropriate; and
- proposed mitigation measures/Conditions of Certification.

## **SUMMARY OF PROJECT RELATED IMPACTS**

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**Executive Summary Table 4** summarizes the potential short- and long-term and cumulative adverse impacts of the proposed Calico Solar Project, the anticipated mitigation and Conditions of Certification, and the level of significance of the impacts after mitigation, under CEQA.

Note that the Energy Commission's "recommended Conditions of Certification" are incorporated into the proposed action that is analyzed by BLM for purposes of NEPA compliance, and the NEPA conclusions regarding potential impacts assume that these mitigations will be implemented as authorized through decision.

**Executive Summary Table 4  
Summary of Potential Short-Term, Long-Term, and Cumulative Adverse Impacts**

<b>Environmental Parameter</b>	<b>Complies with Applicable LORS</b>	<b>Short- and Long-Term Adverse Impacts</b>	<b>Cumulative Adverse Impacts</b>	<b>Mitigation and Conditions of Certification</b>	<b>CEQA Level of Significance After Mitigation</b>
Air Quality	Yes	No significant short term or long term adverse impacts with mitigation/Conditions of Certification incorporated	No cumulative adverse impacts	<b>AQ-1 through AQ-15 and AQ-SC1 through AQ-SC9</b>	Less than significant
Biological Resources	Yes	No significant short term or long term adverse impacts with mitigation/Conditions of Certification incorporated	Would result in significant impacts to Newberry Springs watershed streams, desert tortoise, Mohave fringe-toed lizard, big horned sheep occupied range, white-margined beardtongue, and wildlife movement and connectivity	<b>BIO-1 through BIO-29</b>	Significant and unavoidable
Cultural Resources	Yes	Potential for significant adverse impacts with mitigation/Conditions of Certification incorporated	Potential for cumulative adverse impacts	<b>CUL-1</b>	Potential for significant and unavoidable impacts
Facility Design	Yes	No significant short term or long term adverse impacts with mitigation/Conditions of Certification incorporated	Not applicable	General Conditions	Less than significant
Geology, Paleontology, and Minerals	Yes	No significant short term or long term adverse impacts with mitigation/Conditions of Certification incorporated	No cumulative adverse impacts	<b>PAL-1 through PAL-7, and GEN-1, GEN-5, and CIVIL-1</b>	Less than significant
Hazardous Materials	Yes	No significant short term or long term adverse impacts with mitigation/Conditions of Certification incorporated	No cumulative adverse impacts	<b>HAZ-1 through HAZ-6</b>	Less than significant

<b>Environmental Parameter</b>	<b>Complies with Applicable LORS</b>	<b>Short- and Long-Term Adverse Impacts</b>	<b>Cumulative Adverse Impacts</b>	<b>Mitigation and Conditions of Certification</b>	<b>CEQA Level of Significance After Mitigation</b>
Hydrology, Soils and Water Resources	Yes	No significant short term or long term adverse impacts with mitigation/Conditions of Certification incorporated	No cumulative adverse impacts	<b>SOIL&amp;WATER-1</b> through <b>SOIL&amp;WATER-6</b>	Less than significant
Land Use and Recreation	<b>No</b>	No Significant short term and long term adverse impacts reduced with mitigation/Conditions of Certification incorporated	Would result in significant impacts related to cumulative land conversion	<b>None proposed</b>	Cumulative land use impacts from land conversion would be significant and unavoidable.
Noise and Vibration	Yes	No significant short term or long term adverse impacts with mitigation/Conditions of Certification incorporated	No cumulative adverse impacts	<b>NOISE-1</b> through <b>NOISE-6</b>	Less than significant
Public Health and Safety	Yes	No significant short term or long term adverse impacts with mitigation/Conditions of Certification incorporated	No cumulative adverse impacts	None required	Less than significant
Power Plant Efficiency	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Power Plant Reliability	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Socioeconomic and Environmental Justice	Yes	No significant short term or long term adverse impacts with mitigation/Conditions of Certification incorporated	No cumulative adverse impacts	None required	Less than significant
Traffic and Transportation	Yes	No significant short term or long term adverse impacts with mitigation/Conditions of Certification incorporated	No cumulative adverse impacts	<b>TRANS-1</b> through <b>TRANS-7</b>	Less than significant

<b>Environmental Parameter</b>	<b>Complies with Applicable LORS</b>	<b>Short- and Long-Term Adverse Impacts</b>	<b>Cumulative Adverse Impacts</b>	<b>Mitigation and Conditions of Certification</b>	<b>CEQA Level of Significance After Mitigation</b>
Transmission Line Safety/Nuisance	Yes	No significant short term or long term adverse impacts with mitigation/Conditions of Certification incorporated	No cumulative adverse impacts	<b>TLSN-1</b> through <b>TLSN-4</b>	Less than significant
Transmission System Engineering	Yes	No significant short term or long term adverse impacts with mitigation/Conditions of Certification incorporated	No cumulative adverse impacts	<b>TSE-1</b> through <b>TSE-7</b>	Less than significant
Visual Resources	<b>No</b>	Would result in significant short term (construction) and long term (operation) adverse impacts.	Could result in cumulative adverse impacts	<b>VIS-1</b> through <b>VIS-5</b>	Significant and unavoidable
Waste Management	Yes	No significant short term or long term adverse impacts with mitigation/Conditions of Certification incorporated	No cumulative adverse impacts	<b>WASTE-1</b> through <b>WASTE-8</b>	Less than significant
Worker Safety and Fire Protection	Yes	No significant short term or long term adverse impacts with mitigation/Conditions of Certification incorporated	Could result in cumulative adverse impacts	<b>WORKER SAFETY-1</b> through <b>WORKER SAFETY-7</b>	Less than significant

## **Air Quality**

The staff concludes that with the adoption of the air quality Conditions of Certification the proposed Calico Solar Project would comply with all applicable LORS and would not result in any significant CEQA air quality impacts. These Conditions of Certification meet the CEC's responsibility to comply with CEQA and the BLM's responsibility to comply with the NEPA.

Staff concludes that the proposed project would not have the potential to exceed PSD emission threshold levels during direct source operation and the facility is not considered a major stationary source with potential to cause adverse NEPA air quality impacts. However, without adequate fugitive dust mitigation, the proposed project would have the potential to exceed the General Conformity PM10 applicability threshold during construction and operation, and could cause potential localized exceedances of the PM10 NAAQS during construction and operation. This potential exceedance of federal air quality standards would be considered a direct, adverse impact under the NEPA. This impact would be less than adverse with the proposed mitigation measures controlling fugitive dust.

The Calico Solar Project would emit substantially lower greenhouse gas (GHG)<sup>1</sup> emissions per megawatt-hour than fossil fueled generation resources in California. The Calico Solar Project, as a renewable energy generation facility, is determined by rule to comply with the Greenhouse Gas Emission Performance Standard requirements of SB 1368 (Chapter 11, Greenhouse Gases Emission Performance Standard, Article 1, Section 2903 [b][1]).

**Alternatives.** The Reduced Acreage Alternative would use approximately 32% of the SunCatchers, provide 32% of the power generating potential, and would affect approximately 32% of the land of the proposed 850-MW project. The worst-case short-term construction emissions and ground level pollutant concentration impacts would be similar to the proposed project and would require the same level of mitigation. The total construction period and total construction emissions and long-term ground level pollutant concentration impacts would be reduced from those required to construct the proposed project. The benefits of the proposed project in displacing fossil fuel fired generation and reducing associated, but mainly out of air basin, criteria pollutant emissions would be reduced. The impacts of the proposed project would not occur on the lands not used due to the smaller project size. However, the land on which the project is proposed would become available to other uses that are consistent with BLM's CDCA Plan, including another solar project. The CEQA level of significance for the Reduced Acreage Alternative would be the same as for the proposed project, with the same significance rationale, where if left unmitigated there is the potential for significant NO<sub>x</sub> and PM emission impacts during the Alternative project's construction and operation. The mitigation that would be proposed for the Reduced Acreage Alternative would be the same as that proposed for the proposed project.

The Avoidance of Donated and Acquired Lands Alternative would use approximately 85% of the SunCatchers, provide 85% of the power generating potential, and would

affect approximately 86% of the land (7,050 acres) of the proposed 850-MW project. Additionally, like the proposed project, the Avoidance of Donated and Acquired Lands Alternative would require the SCE Full Build-out Option upgrade. The worst-case short-term construction emissions and ground level pollutant concentration impacts would be nearly the same as the proposed project and would require the same level of mitigation. The total construction period and total construction emissions and long-term ground level pollutant concentration impacts would be marginally reduced from those required to construct the proposed project. The benefits of the proposed project in displacing fossil fuel fired generation and reducing associated, but mainly out of air basin, criteria pollutant emissions would be slightly reduced. The impacts of the proposed project would not occur on the donated or acquired lands. However, the land on which the project is proposed may become available to other uses that are consistent with BLM's land use plan, including another solar project. The level of significance under CEQA for the Avoidance of Donated and Acquired Lands Alternative would be the same as for the proposed project, with the same significance rationale, where if left unmitigated there is the potential for significant NOx and PM emission impacts during the Alternative project's construction and operation. The mitigation that would be proposed for the Avoidance of Donated and Acquired Lands Alternative would be the same as that proposed for the proposed project (staff recommended Conditions of Certification).

Under the three No Action/No Project Alternatives, the air quality impacts of the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's California Desert Conservation Area (CDCA) land use plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

### **Biological Resources**

The staff concludes that without mitigation, the Calico Solar Project would be a substantial contributor to the cumulatively significant loss of the Mojave Desert's biological resources, including the State and federally threatened desert tortoise and other special-status species. Impact avoidance and minimization measures described in staff's analysis and included in the Conditions of Certification would help reduce impacts to sensitive biological resources. However, compensatory measures are necessary to offset project-related losses, and to assure compliance with State and federal laws such as the federal and State Endangered Species Acts and regulations protecting waters of the State.

**Alternatives.** The Reduced Acreage Alternative would reduce some impacts to biological resources identified on the site, including desert washes, desert tortoise habitat and some identified populations of rare plants. The footprint of the Reduced Acreage Alternative would also minimize potential conflicts with Nelson's bighorn sheep by avoiding potential foraging habitat and providing greater distance between bighorn sheep and construction/operation activities. While barriers to wildlife movement would still remain, by moving the project footprint away from the foothills, the project would reduce barriers to wildlife movement for desert tortoise, bighorn sheep and other species. The Conditions of Certification are the same as those for the proposed project.

Implementation of these Conditions would mitigate for the direct, indirect and cumulative impacts of the Reduced Acreage Alternative, and would be less than significant under CEQA.

The Avoidance of Donated and Acquired Lands Alternative would decrease the project site by 15% for a total project size of 7,050 acres. Implementation of the Avoidance of Donated and Acquired Lands Alternative would have the same types of impacts as the proposed alternative but the magnitude would be decreased. Similar to the proposed project, this 720-MW alternative would also require the upgrades to the SCE Pisgah-Lugo transmission line and the Pisgah Substation and result in the same biological impacts in those areas. The Conditions of Certification are the same as those for the proposed project. Implementation of these Conditions would mitigate for the direct, indirect and cumulative impacts of the Reduced Acreage Alternative, and would be less than significant under CEQA.

Under the three No Action/No Project Alternatives, the impacts to biological resources from the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's California Desert Conservation Area (CDCA) land use plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

### **Cultural Resources**

On the basis of a 25% sample of the cultural resources inventory of the project area of analysis, staff conclude that the Calico Solar Project would have significant impacts/effects on a presently unknown subset of approximately 139 known prehistoric and historical surface archaeological resources and may have significant impacts/effects on an unknown number of buried archaeological deposits, many of which may be determined historically significant (i.e. eligible for the National Register of Historic Places and the California Register of Historical Resources) under the Programmatic Agreement currently under development as part of the Bureau of Land Management's National Historic Preservation Act Section 106 (Section 106) consultation process. The adoption and implementation of the Condition of Certification would reduce the potential impacts of the proposed action on these cultural resources to less than significant under CEQA, would resolve effects under Section 106, and would further ensure that the proposed action would be in conformity with all applicable LORS.

**Alternatives.** The Reduced Acreage Alternative would substantially reduce the impacts of the project by occupying only 31% of the proposed project area and avoiding many sensitive cultural resources. Fifteen cultural resources sites have been identified as part of the 25% re-survey for this alternative. The Reduced Acreage Alternative is anticipated to have significant effect per NEPA, significant impact per CEQA, and adverse effect per Section 106 of the NHPA. When resource evaluations have been completed, impacts will be assessed. The observation and identification of 15 cultural resources thus far as part of the 25% re-survey suggests periodic use of the project landform in the past. Severity and extent of impacts would be reduced given the presence of fewer cultural resources within this alternative that is 31% the size of the proposed project. If impacts are deemed significant, mitigation measures would be stipulated and refined in

a Programmatic Agreement negotiated among all consulting parties and executed by the BLM, as described for the proposed Project.

Although the Reduced Acreage alternative would result in a reduction of impacts to cultural resources, it cannot be determined with the presently-available information whether impacts to historically-significant resources would occur, and if so, whether they could be avoided. Therefore, it is presumed that this alternative could also result in significant impacts under CEQA. While implementation of a Programmatic Agreement is anticipated to reduce the severity of impacts to cultural resources, it cannot be determined at this time whether impacts would be reduced to a level below significance under CEQA. Therefore, it is anticipated that this alternative has the potential to result in significant unavoidable impacts under CEQA, though the severity of impacts would be less than with the proposed Project.

The Avoidance of Donated and Acquired Lands Alternative would retain 85% of the proposed SunCatchers and would affect 85% of the land of the proposed 850-MW project. Forty-four cultural resource sites have been identified as part of the 25% re-survey for this alternative. Because the Avoidance of Donated and Acquired Lands Alternative would generate approximately 720 MW of power, it would (similar to the proposed project) require a 65-mile upgrade to the SCE Pisgah-Lugo transmission line and upgrades to the Pisgah Substation. This alternative is anticipated to have significant effect per NEPA, significant impact per CEQA, adverse effect per Section 106 of the NHPA. A Programmatic Agreement would be drafted and negotiated among all consulting parties, including interested Tribes. The agreement would stipulate the development of treatment plans, including the refinement and definition of mitigation measures.

Although the Avoidance of Donated and Acquired Lands Alternative would result in a reduction of impacts to cultural resources, it cannot be determined with the presently-available information whether impacts to historically-significant resources would occur, and if so, whether they could be avoided. Therefore, it is presumed that this alternative could also result in significant impacts under CEQA. While implementation of a Programmatic Agreement is anticipated to reduce the severity of impacts to cultural resources, it cannot be determined at this time whether impacts would be reduced to a level below significance under CEQA. Therefore, it is anticipated that this alternative has the potential to result in significant unavoidable impacts under CEQA. The severity of impacts would be less than with the proposed Project, but would likely be greater than the Reduced Acreage alternative.

Under the three No Action/No Project Alternatives, the impacts to cultural resources from the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's California Desert Conservation Area (CDCA) land use plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

## **Facility Design**

Staff conclude that the design, construction, and decommissioning of the project and its linear facilities would likely comply with applicable engineering LORS. The proposed Conditions of Certification in **Executive Summary Table 4** would ensure compliance with the applicable LORS. The Facility Design section is not intended to address environmental impacts under either CEQA or NEPA.

**Alternatives.** The same LORS and Conditions of Certification would also apply to the Reduced Acreage Alternative and the Avoidance of Donated and Acquired Lands Alternative. The Facility Design section is not intended to address environmental impacts under either CEQA or NEPA.

Under the three No Action/No Project Alternatives, the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's California Desert Conservation Area (CDCA) land use plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

## **Geology, Paleontology, and Minerals**

Staff believes that the potential is low for significant adverse impacts to the proposed project from geologic hazards during its design life and to potential geologic, mineralogic, and paleontologic resources from the construction, operation, and closure of the proposed project. The Calico Solar Project could be designed and constructed in accordance with all applicable LORS and in a manner that both protects environmental quality and assures public safety, to the extent practical.

**Alternatives.** Like the proposed project, the potential is low for significant adverse impacts to the Reduced Acreage Alternative from geological hazards during its design life and moderate to high paleontological resources from the construction, operation, and closure of the proposed project. Staff concludes that this alternative would be designed and constructed in accordance with all applicable LORS and in a manner that both protects environmental quality and assures public safety. The CEQA level of significance would remain unchanged from the proposed project.

Like the proposed project, the potential is low for significant adverse impacts to the Avoidance of Donated and Acquired Lands Alternative from geological hazards during its design life and moderate to high paleontological resources from the construction, operation, and closure of the proposed project. Staff concludes that this alternative will be designed and constructed in accordance with all applicable laws, ordinances, regulations, and standards and in a manner that both protects environmental quality and assures public safety. The CEQA level of significance would remain unchanged from the proposed project.

Under the three No Action/No Project Alternatives, the impacts to geology, paleontology and mineral resources from the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's California Desert

Conservation Area (CDCA) land use plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site

### **Hazardous Materials**

The staff's evaluation of the proposed project, along with staff's proposed mitigation measures, indicate that hazardous materials use at the proposed Calico Solar Project would not present a significant impact pursuant to CEQA on the public or environment. With adoption of the proposed Conditions of Certification, the proposed project would comply with all applicable LORS.

**Alternatives.** The Reduced Acreage alternative would not result in any significant change in the potential for impact associated with hazardous materials handling and storage. The proposed project would not pose a significant risk of public impact as a result of an accidental release of hazardous materials. This alternative would not significantly change the risk profile of the facility.

Like the proposed project, the construction and operation of the Reduced Acreage alternative would be in compliance with all applicable LORS. The significance criteria for the Reduced Acreage alternative are exactly the same as the criteria for the proposed project.

The Avoidance of Donated and Acquired Lands Alternative would not result in any significant change in the potential for impact associated with hazardous materials handling and storage. The proposed project would not pose a significant risk of public impact as a result of an accidental release of hazardous materials. This alternative would not significantly change the risk profile of the facility. Like the proposed project, the construction and operation of the Avoidance of Donated and Acquired Lands Alternative would be in compliance with all applicable LORS. The significance criteria for the Avoidance of Donated land alternative is exactly the same as the significance criteria for the proposed project.

Under the three No Action/No Project Alternatives, the use and generation of hazardous materials from the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's California Desert Conservation Area (CDCA) land use plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

### **Hydrology, Water Use and Water Quality**

Staff has determined that construction, operation, and decommissioning of the proposed Calico Solar Project could potentially impact soil and water resources. Where these potential impacts have been identified, staff has proposed mitigation measures to reduce identified impacts to levels that are less than significant. The mitigation measures, as well as specifications for laws, ordinances, regulations and standards (LORS) conformance, are included herein as Conditions of Certification. The Project would conform to all applicable LORS.

**Alternatives.** All of the potential impacts identified for the proposed project remain with the Reduced Acreage Alternative. However, due to the alternative's reduced physical size and reduction in number of SunCatchers, these potential impacts are proportionately reduced. There would be no change in the CEQA Level of Significance of impacts between the proposed project and the Reduced Acreage alternative.

The portion of the Avoidance of Donated and Acquired Lands Alternative in the northeastern corner of the originally proposed Calico Solar site occupies the area where flood intercept debris collection and flow detention basins were designed by the applicant to mitigate the 100-year flood impact to the site. Should the Avoidance of Donated and Acquired Lands Alternative be constructed, flood intercept debris collection and flow detention basins would need to be similarly designed and constructed downstream from the southern boundary of that donated parcel. Another donated parcel is located near the center of the original site. Should the Avoidance of Donated and Acquired Lands Alternative be constructed, onsite drainage control structures will need to be redesigned to avoid that donated parcel, while maintaining site erosion/sedimentation control. Provided the redesign of the flood control and erosion/sedimentation control structures meet the same standards as for the Calico Solar Project, no change to the CEQA Level of Significance of impacts would occur between the proposed project and the Avoidance of Donated and Acquired Lands Alternative.

Under the three No Action/No Project Alternatives, the impacts to hydrology, water use, and water quality from the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's California Desert Conservation Area (CDCA) Plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

### **Land Use and Recreation**

Implementation of the proposed Calico Solar Project would not result in adverse impacts to agricultural lands, rangeland resources, or horses and burros. The conversion of approximately 8,230 acres of land to support the proposed project's components and activities could disrupt wilderness resources and recreational activities in established federal, state, and local recreation areas; however, due to the abundance of wilderness and recreation sites surrounding the project area, potential impacts from the proposed project would affect a small fraction of these lands and would not be adverse. For purposes of CEQA compliance, impacts to agricultural lands and rangelands would be less-than-significant, and there would be no impacts related to Williamson Act contracts. Impacts to recreation and wilderness resources would be less-than-significant. Impacts to horses and burros would be less-than-significant. Impacts related to LORS compliance would be significant and unavoidable because the proposed project boundary contains donated and acquired lands which, pursuant to a BLM interim policy memorandum, are to be managed as avoidance/exclusion areas for land use authorizations that could result in surface disturbing activities. Although the development of renewable resources is in compliance with federal and state mandates, the conversion of thousands of acres of open space would result in a significant and unavoidable cumulative land use impact. The land conversion impacts would preclude numerous existing land uses including

recreation, wilderness, rangeland, and open space, and therefore, result in a significant and unavoidable cumulative land use impact. No Conditions of Certification are proposed.

**Alternatives.** The Reduced Acreage Alternative would occupy 2,600 acres of lands, 33% of what would be impacted by the proposed project. Similar to the proposed project, there would be no impacts on horses or burros, farmlands or rangelands. The affected lands would be entirely under BLM jurisdiction and would not contain donated or acquired lands. Accordingly this alternative would be consistent with the BLM interim policy memorandum and all applicable LORS. Impacts to wilderness, recreation and open space would be proportionately less, but the conversion of the affected open space lands to renewable energy development would preclude numerous existing land uses including recreation, wilderness, rangeland, and open space, and therefore, result in a significant cumulative land use effect. The CEQA level of significance would be less than significant for all other land use resources.

The Avoidance of Donated and Acquired Lands Alternative would occupy 7,050 acres of lands, 85% of what would be impacted by the proposed project. Similar to the proposed project, there would be no impacts on horses or burros, farmlands or rangelands. Similar to the proposed project, the Avoidance of Donated and Acquired Lands Alternative would indirectly disrupt current wilderness areas and recreational activities in established federal and state areas which would result in adverse effects on recreational users of these lands, but the impact would be proportional compared to the proposed project. The affected lands would be entirely under BLM jurisdiction and would not contain donated or acquired lands. Accordingly this alternative would be consistent with the BLM interim policy memorandum and all applicable LORS. Impacts to wilderness, recreation and open space would be proportionately less, but the conversion of the affected open space lands to renewable energy development would preclude numerous existing land uses including recreation, wilderness, rangeland, and open space, and therefore, result in a significant cumulative land use effect. The CEQA level of significance would be less than significant for all other land use resources.

Under the three No Action/No Project Alternatives, the impacts to land use and recreation from the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's California Desert Conservation Area (CDCA) land use plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

### **Noise and Vibration**

The staff concludes that the Calico Solar Project can be built and operated in compliance with all applicable noise and vibration LORS. If the proposed project is built in accordance with Conditions of Certification **NOISE-1** through **NOISE-7**, it would produce no significant adverse noise impacts under CEQA on people within the affected area, either direct, indirect, or cumulative.

**Alternatives.** Given the nature of the operational noise produced by the chosen project technology, the Reduced Acreage Alternative would most likely correspond to lower operational noise impacts at noise receptors located east of the project (SR2), a receptor

that faces significant, though mitigable noise impacts from the proposed project. Operational noise impacts at the receptors south of the project would likely be the same as that of the proposed 850-MW project. The CEQA level of significance of the Reduced Acreage Alternative would be unchanged from the proposed project.

The Avoidance of Donated and Acquired Lands Alternative would not substantively change the noise and vibration impacts from those of the proposed project.

Under the three No Action/No Project Alternatives, the noise and vibration impacts from the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's California Desert Conservation Area (CDCA) land use plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

### **Power Plant Efficiency**

The CEC staff has analyzed the potential efficiency in energy associated with construction and operation of the Calico Solar Project. The project would decrease reliance on fossil fuel due to increased availability of renewable energy resources. It would not create significant adverse effects on fossil fuel energy supplies or resources under CEQA, would not require additional sources of energy supply, and would not consume fossil fuel energy in a wasteful or inefficient manner. No efficiency standards apply to this project. The CEC staff concludes that this project would present no significant adverse impacts on fossil fuel energy resources under CEQA. If constructed and operated as proposed, the Calico Solar project would occupy nearly 9 acres per MW of power output, a figure double that of some other solar power technologies. It has not been determined how great a difference in land use would constitute a significant impact.

**Alternatives.** The Reduced Acreage Alternative would produce 275 MW while occupying 2,300 acres, resulting in a power-based land use efficiency of 0.12 MW/acre. If the Reduced Acreage Alternative were constructed, the CEQA Level of Significance as measured by land use (occupied acreage) would amount to approximately 28% of the levels described for the proposed project.

The Avoidance of Donated and Acquired Lands Alternative would produce approximately 720 MW while occupying 7,050 acres, resulting in a power-based land use efficiency of 0.102 MW/acre, about the same as the proposed project, and about half as efficient as other solar thermal technologies. The CEQA level of significance would not change from the levels described for the proposed project. No Conditions of Certification would apply.

Under the three No Action/No Project Alternatives, the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's California Desert Conservation Area (CDCA) land use plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

## **POWER PLANT RELIABILITY**

Staff cannot determine whether the predicted power plant availability factor of 99%, as supplied by the Applicant, is achievable. Further, staff cannot predict what the actual availability might be, given the demonstration status of the SunCatcher technology and limited data on large-scaled deployments of SunCatchers. The availability factor of a power plant is the percentage of time it is available to generate power; both planned and unplanned outages subtract from this availability. Staff believes it possible that the project may face challenges from considerable maintenance demands, reducing its availability. No Conditions of Certification are proposed.

**Alternatives.** The Reduced Acreage power plant would produce only 275 MW (32% of the proposed project's 850 MW) so its impacts on the SCE grid would be proportionately less. The CEQA Level of Significance would not change from the levels described for the proposed project if the Reduced Acreage alternative were constructed.

The Avoidance of Donated and Acquired Lands Alternative power plant would produce 720 MW (85% of the proposed project's 850 MW) so its impacts on the SCE grid would be only slightly less. The CEQA Level of Significance would not change from the levels described for the proposed project if this alternative were constructed.

Under the three No Action/No Project Alternatives, the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's California Desert Conservation Area (CDCA) land use plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

## **Public Health and Safety**

Staff have analyzed potential public health and safety risks associated with construction and operation of the Calico Solar Project and do not expect any substantial adverse cancer or short- or long-term noncancerous health effects from project toxic emissions under CEQA. According to the results of staff's health risk assessment, emissions from the Calico Solar Project would not contribute substantially to morbidity or mortality in any age or ethnic group residing in the project area.

**Alternatives.** The Reduced Acreage Alternative would likely result in reduced emission which would decrease the cancer risk and chronic and acute health hazard indices predicted for the proposed project. However, the public health analysis has determined that these indices are far below the level of significance at the point of maximum impact for the project as proposed. Therefore, with respect to public health impacts, the Reduced Acreage Alternative is not preferable over the project as proposed. Similar to the proposed project, staff considers project compliance with LORS to be sufficient to ensure that no significant impacts would occur as a result of waste management associated with the Reduced Acreage Alternative.

The Avoidance of Donated and Acquired Lands Alternative would result in similar types of public health and safety issues from construction, demolition and operation as the proposed project. Staff has analyzed potential public health risks associated with

construction and operation of the Calico Solar Project and does not expect any significant adverse cancer or long-term health effects to any members of the public, including low income and minority populations, from project toxic emissions. The Avoidance Alternative would reduce the project by approximately 15%, but otherwise represent the same impacts. The results of staff's health risk assessment indicate that emissions from the Calico Solar Project would not contribute significantly or cumulatively to morbidity or mortality in any age or ethnic group residing in the project area. Similar to the proposed project, staff considers project compliance with LORS to be sufficient to ensure that no significant impacts would occur to public health and safety associated with the construction or operation of the Avoidance Alternative.

Under the three No Action/No Project Alternatives, the public health and safety impacts from the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's California Desert Conservation Area (CDCA) land use plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

### **Socioeconomics and Environmental Justice**

Staff conclude that the 850-megawatt Calico Solar Project would cause neither a significant adverse direct or indirect impact nor contribute to a cumulative socioeconomic impact on the area's housing, schools, parks and recreation, police, emergency medical services, or hospitals, since most of the project's construction and operation workforce currently resides in the regional or local labor market area. Gross public benefits from the project include capital costs, construction and operation payroll, and sales taxes.

**Alternatives.** The Reduced Acreage Alternative would eliminate approximately 67% of the proposed project area, would not require an upgraded transmission line, and would consist of fewer (11,000) SunCatchers than the proposed project (34,000). Accordingly, the Reduced Acreage Alternative would require less construction with the above mentioned infrastructure and operation of the solar facility. This would result in a smaller fiscal impact than the proposed project, with a reduced need for housing, schools, parks and recreation, law enforcement and emergency medical services. The Reduced Acreage Alternative would have a smaller impact than the proposed project on substantial population growth, impact housing supply, displace existing housing or substantial numbers of people or result in substantial physical impacts to government facilities. In addition, this alternative would have a smaller impact than the proposed project with respect to project cost, payroll, and local construction materials/supplies. Similar to the proposed project, this alternative would not a cause adverse significant socioeconomic impact from construction or operation. Similar to the proposed project, the Reduced Acreage Alternative would not require socioeconomic Conditions of Certification.

The 720-MW Avoidance of Donated and Acquired Lands Alternative would require installation of 28,000 SunCatchers. Accordingly, this alternative would require a smaller construction and operation workforce, which would require less housing, schools, parks and recreation, law enforcement and medical services. Reduced construction would result in smaller fiscal effects from construction and operation sales tax. Total project costs, payroll costs, and local construction materials/supplies would have a smaller non-

fiscal effect. Similar to the proposed project, the Avoidance of Donated and Acquired Lands Alternative would not cause an adverse significant impact from construction or operation. The benefits of the project to the local economy would be reduced because of the reduced acreage and construction requirements, the construction and operation staff would be decreased, and there would be fewer impacts to socioeconomic resources. Similar to the proposed project, the Avoidance of Donated and Acquired Lands Alternative would not require socioeconomic Conditions of Certification.

Under the three No Action/No Project Alternatives, the socioeconomic benefits from the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's California Desert Conservation Area (CDCA) land use plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

### **Traffic and Transportation**

With implementation of recommended Conditions of Certification, Calico Solar Project would be consistent with applicable LORS. As a result, it would not have a significant adverse impact on the local and regional roadway network. With implementation of recommended Conditions of Certifications, local roadway and highway demand resulting from daily movement of workers would not increase beyond significance thresholds established by San Bernardino County and the State of California. Presently open routes that traverse the project area would be closed if any of the Action Alternatives or CDCA Plan amendments are approved.

**Alternatives.** Implementation of the Reduced Acreage Alternative would not significantly affect the number of workers needed for the construction and operation of this project because it does not change the setting of the project or the necessity of the workers to travel on I-40. Workers required for this project is relatively small and even each worker traveling alone in one vehicle would not exceed acceptable levels of service on I-40. However, staff has proposed mitigation to encourage car-pooling or other methods of reducing traffic impacts. Similar to the proposed project, staff considers project compliance with LORS and staff's Conditions of Certification to be sufficient to ensure that no significant impacts would occur as a result of waste management associated with the Reduced Acreage Alternative.

The Avoidance of Donated and Acquired Lands Alternative would generate similar types of hazardous and non-hazardous wastes from construction, demolition and operation of the project. However, the quantities of waste would be reduced by 15%. The amount of non-hazardous and hazardous solid wastes generated under a 720-MW Alternative that would require landfill/treatment would be approximately 7,100 and 191 cubic yards, respectively. Similar to the proposed project, wastes requiring off-site disposal would be significantly less than the remaining capacity of off-site disposal facilities. Similar to the proposed project, staff will not require investigation and remediation of soil and groundwater contamination. Disposal methods would remain the same as for the proposed project and the same Conditions of Certification (**WASTE-1** through **-8**) would apply. Similar to the proposed project, staff considers project compliance with LORS and staff's Conditions of Certification to be sufficient to ensure that no significant

impacts would occur as a result of waste management associated with the 720-MW Alternative.

Under the three No Action/No Project Alternatives, the impacts to traffic and transportation from the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's CDCA Plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

### **Transmission Line Safety and Nuisance**

The applicant, Calico Solar, LLC, proposes to transmit the power from the two phases of the proposed Calico Solar Project (formerly the Stirling Energy Systems Solar One Project) to Southern California Edison's existing Pisgah Substation from which it would be delivered to the California Independent Operator-controlled power grid. Since the line would be operated within the Southern California Edison service area, it would be constructed, operated, and maintained according to Southern California Edison's guidelines for line safety and field management which conform to applicable laws, ordinances, regulations and standards. Also, the route would traverse undisturbed desert land with no nearby residents thereby eliminating the potential for residential electric and magnetic field exposures. With the proposed Conditions of Certification, any safety and nuisance impacts from construction and operation of the proposed line would be less than significant.

**Alternatives.** The Reduced Acreage Alternative would have fewer (11,000) SunCatchers than with the proposed alternative (34,000), but the system of aggregation and method of power transmission would be the same as the proposed project. Because the staff finds the safety and nuisance impacts of the proposed 850-MW project to be less than significant under CEQA, staff would expect the design's implementation for the 275-MW Reduced Acreage Alternative (as required by the Conditions of Certification) to result in impacts that would be less than significant as well.

The Avoidance of Donated and Acquired Lands Alternative would consist of 28,800 solar collectors occupying the entire footprint of the proposed project but avoiding use of any donated or acquired lands. Like the proposed project, the power from this alternative would be transmitted to the grid through the Pisgah Substation and would require infrastructure similar to that of the proposed 850 MW including water storage tanks, transmission line, and substation. Like the proposed project, this alternative would require the SCE Full Build-out Option upgrade, which would be constructed, operated, and maintained according to SCE's guidelines for line safety and field management which conform to applicable LORS and traverse undisturbed desert land with no nearby residents, eliminating the potential for residential electric and magnetic field exposures. With the Conditions of Certification recommended for the proposed project, any safety and nuisance impacts from the line for the Avoidance of Donated and Acquired Lands Alternative would be less than significant.

Under the three No Action/No Project Alternatives, the impacts pertaining to transmission line safety and nuisance from the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another

renewable energy project, if the proposal is consistent with BLM's California Desert Conservation Area (CDCA) land use plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

### **Transmission System Engineering**

The proposed Calico Solar Project outlet lines and termination are acceptable and would comply with the NERC/WECC planning standards, California ISO reliability criteria, and all applicable LORS with implementation of the Conditions of Certification. The analysis of project transmission lines and equipment, both from the power plant up to the point of interconnection with the existing transmission network as well as upgrades beyond the interconnection that are attributable to the project have been evaluated by staff and are included in the environmental sections of this Staff Assessment/Draft Environmental Impact Statement.

Commission staff relies on the responsible interconnecting authority for analysis of impacts on the transmission grid, as well as for the identification and approval of new or modified facilities required downstream from a proposed interconnection for mitigation purposes. The proposed Calico Solar Project would connect to Southern California Edison's (SCE's) existing 230-kV transmission network and would require both analysis by SCE and the approval of the California Independent System Operator (California ISO).

**Alternatives.** The Reduced Acreage Alternative would require 11,000 SunCatchers to generate approximately 275 MW. This alternative was developed because it could be constructed without upgrading the existing SCE Lugo-Pisgah transmission line and Pisgah Substation. Therefore, the 275-MW Alternative would require fewer distribution facilities and a smaller substation to be built within the project site. Because this alternative would require fewer transformers, fewer collector distribution feeders and other electrical components, it would also result in fewer impacts to the environment and triggers less CEQA level analysis.

The Avoidance of Donated and Acquired Lands Alternative would consist of 28,800 SunCatchers with a net generating capacity of approximately 720 MW occupying the entire proposed project footprint except for the donated or acquired lands. Like the proposed project, this alternative would transmit power to the grid through the SCE Pisgah Substation and would require infrastructure similar to the entire proposed 850-MW project, including water storage tanks, transmission line, road access, main services complex, and substation. Additionally, like the proposed project, the Avoidance of Donated and Acquired Lands Alternative would require the 65-mile upgrade to the SCE Lugo-Pisgah transmission line. If the Avoidance of Donated and Acquired Lands Alternative were approved, other renewable projects may be developed on other sites in the in San Bernardino County, the Mojave Desert, or in adjacent states to fill the 130-MW gap not supplied by the proposed project as developers strive to provide renewable power that complies with utility requirements and State/Federal mandates.

Under the three No Action/No Project Alternatives, the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's California Desert Conservation Area (CDCA) land use plan. This would occur

under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

### **Visual Resources**

Staff concludes that the proposed project would substantially degrade the existing visual character and quality of the site and its surroundings, including motorists on Interstate 40 and National Trails Highway/Route 66. With staff recommended Conditions of Certification, these impacts could be greatly reduced but would remain significant and unavoidable. The BLM is in the process of establishing visual resource management classifications for the proposed project and surrounding areas.

**Alternatives.** The Reduced Acreage Alternative is 31% of the size the proposed project with a south project boundary that is 1 mile from Interstate 40, and in most cases, nearly 2 miles south of the Cady Mountains WSA. These setbacks would eliminate the foreground impacts as seen from these two locations. Middle-ground impacts would also be reduced, as less of the landscape in the middle-ground would be occupied. Likewise, the increased setback of this alternative would eliminate the possibility of obstructing scenic views of the background mountains. Given the moderate level of existing scenic quality of the viewshed, although the level of overall viewer sensitivity of these viewpoints is considered to be moderately high, the moderate level of overall visual change and the greatly reduced level of nuisance glare of the Reduced Acreage Alternative could be considered acceptable, and less-than-significant.

The Avoidance of Donated and Acquired Lands Alternative avoids donated and acquired lands, altering the eastern boundary of the project area and reducing the number of solar dishes. However, with regard to visual setting and existing conditions, this alternative would be very similar to the proposed project. This is because the areas withdrawn by this alternative are remote from the highway and affect only a portion of the boundary with the Cady Mountains WSA. The solar arrays would occupy most of the same surface as in the proposed project. Accordingly, the visual impacts of Avoidance of Donated and Acquired Lands Alternative would not differ in a meaningful way from those described for the proposed project. The vast size of the site would be reduced, but not in a way that would be readily perceptible to most viewers, in particular those on the highways. Because there would be no readily perceptible reduction in visual impact, the CEQA level of significance would remain as described for the proposed project.

Under the three No Action/No Project Alternatives, the impacts to visual resources from the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's California Desert Conservation Area (CDCA) land use plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

### **Waste Management**

Staff concludes that management of the waste generated during construction and operation of the Calico Solar Project would not generate a significant impact under the CEQA. There is sufficient landfill capacity, and the project would be consistent with the

applicable waste management LORS if the measures proposed in the Application for Certification and staff's proposed Conditions of Certification are implemented.

**Alternatives.** The Reduced Acreage Alternative would generate similar types of hazardous and non-hazardous wastes from construction, demolition and operation of the project. However, the quantities of waste would be reduced by 66%. The amount of non-hazardous and hazardous solid wastes generated under a Reduced Acreage Alternative that would require landfill/treatment would be approximately 3,000 and 74 cubic yards, respectively. Similar to the proposed project, wastes requiring off-site disposal would be significantly less than the remaining capacity of off-site disposal facilities. Similar to the proposed project, staff would not require investigation and remediation of soil and groundwater contamination. Disposal methods would remain the same as for the proposed project and the same Conditions of Certification would apply. Similar to the proposed project, staff considers project compliance with LORS and Conditions of Certification to be sufficient to ensure that no significant impacts would occur as a result of waste management associated with the Reduced Acreage Alternative.

The Avoidance of Donated and Acquired Lands Alternative would generate similar types of hazardous and non-hazardous wastes from construction, demolition and operation of the project. However, the quantities of waste would be reduced by 15%. The amount of non-hazardous and hazardous solid wastes generated under a 720-MW Alternative that would require landfill/treatment would be approximately 7,100 and 191 cubic yards, respectively. Similar to the proposed project, wastes requiring off-site disposal would be significantly less than the remaining capacity of off-site disposal facilities. Similar to the proposed project, staff would not require investigation and remediation of soil and groundwater contamination. Disposal methods would remain the same as for the proposed project and the same Conditions of Certification would apply. Similar to the proposed project, staff considers project compliance with LORS and staff's Conditions of Certification to be sufficient to ensure that no significant impacts would occur as a result of waste management associated with the Avoidance of Donated and Acquired Lands Alternative.

Under the three No Action/No Project Alternatives, the waste management impacts from the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's California Desert Conservation Area (CDCA) land use plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

### **Worker Safety and Fire Protection**

Staff concludes that the proposed project would have a significant impact under CEQA on local fire protection services which are currently provided by the San Bernardino County Fire Department (SBCFD). If the Applicant for the proposed Calico Solar Project provides project construction safety and health and project operations and maintenance safety and health programs, as required by the Conditions of Certification, the project would incorporate sufficient measures to both ensure adequate levels of industrial safety and comply with applicable LORS. The Conditions of Certification would reduce these risks to less than significant. They also ensure that these programs, proposed by

the Applicant, would be reviewed by the appropriate agencies before they are implemented.

**Alternatives.** Since the proposed project impacts are found to be less than significant under CEQA with the incorporation of Conditions of Certification, the impacts of the Reduced Acreage Alternative would be smaller due to the smaller extent of construction disturbance and the fewer number of SunCatchers under this alternative. Like the proposed project, the construction and operation of the Reduced Acreage Alternative would be in compliance with all applicable LORS for both long-term and short-term project impacts in the area of worker safety and fire protection with adoption of the same proposed Conditions of Certification.

The types of construction and operational impacts of the Avoidance of Donated and Acquired Lands Alternative would be the same as those of the proposed project. The proposed project impacts are found to be less than significant under CEQA with the incorporation of Conditions of Certification, and impacts of this alternative would be smaller due to the smaller extent of construction disturbance and the smaller number of SunCatchers of the alternative. Like the proposed project, the construction and operation of the Avoidance of Donated and Acquired Lands Alternative would be in compliance with all applicable LORS for both long-term and short-term project impacts in the area of worker safety and fire protection with the adoption of the same proposed Conditions of Certification.

Under the three No Action/No Project Alternatives, the impacts pertaining to worker safety and fire protection from the proposed project would not occur. However, the land on which the project is proposed could become available to other uses, including another renewable energy project, if the proposal is consistent with BLM's California Desert Conservation Area (CDCA) land use plan. This would occur under the No Action/No Project Alternative (2) which includes a CDCA Plan Amendment allowing for future renewable energy development on this project site.

## **NOTEWORTHY PUBLIC BENEFITS**

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Staff has identified the following public benefits.

1) Greenhouse gas (GHG) related noteworthy public benefits include the construction and operation of renewable and low-GHG emitting generation technologies and the potential for successful integration into the California and greater WECC electricity systems. Additionally, the Calico Solar Project would contribute to meeting the state's Assembly Bill (AB) 32 goals.

2) The science of paleontology is advanced by the discovery, study and duration of new fossils. These fossils can be substantial if they represent a new species, verify a known species in a new location and/or if they include structures of similar specimens that had not previously been found preserved. In general, most fossil discoveries are the result of excavations, either purposeful in known or suspected fossil localities or as the result of excavations made during earthwork for civil improvements or mineral extraction. Proper monitoring of excavations at the proposed Calico Solar facility, in accordance with an approved Paleontological Monitoring and Mitigation Plan, could result in a benefit to the

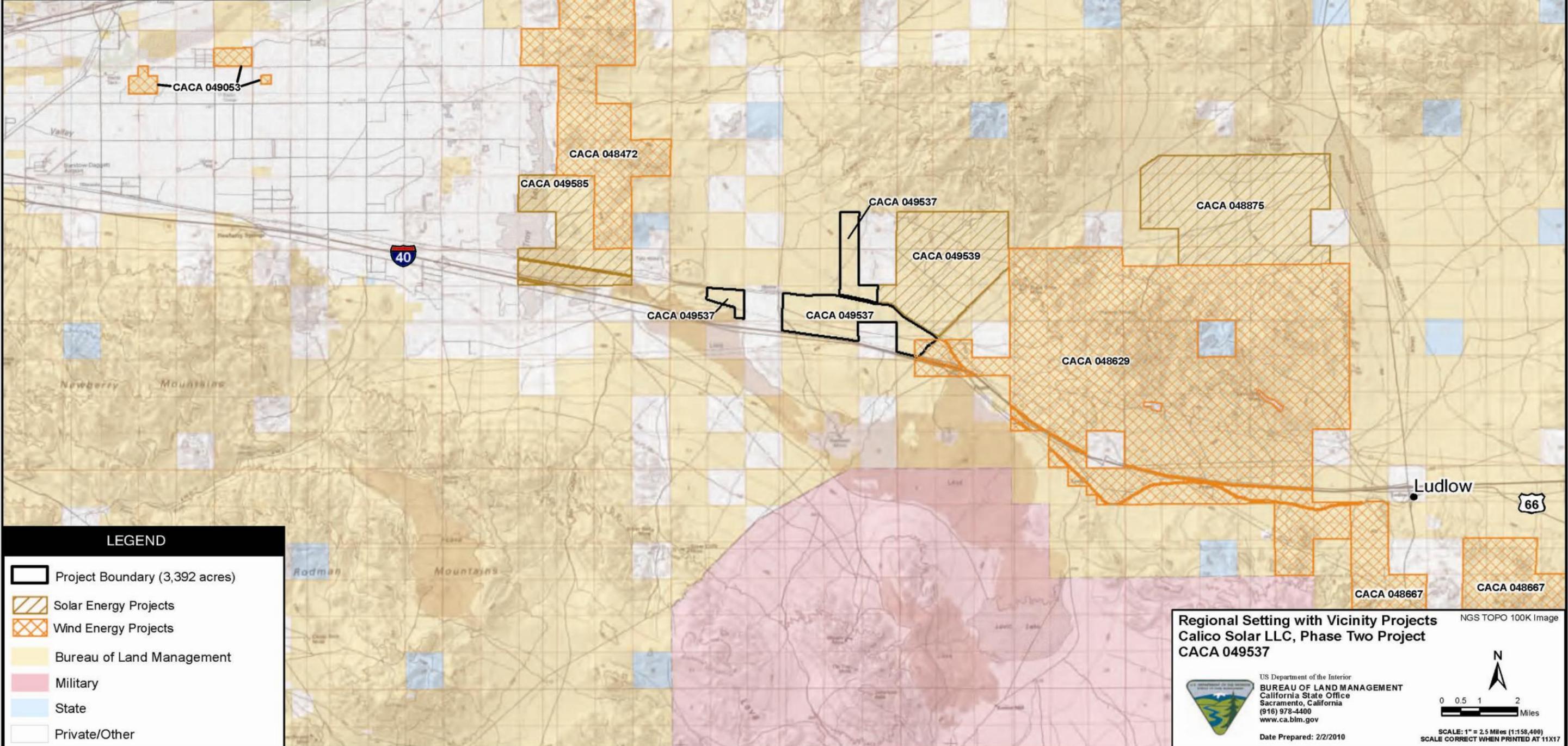
science of paleontology and should minimize the potential to damage a substantial paleontological resource.

3) The proposed project would help in reducing greenhouse gas emissions from gas-fired generation. Both State and Federal law support the increased use of renewable energy and any resultant decreases in the use of riskier hazardous materials for power production at other facilities.

4) It is noteworthy that a solar electric generating facility such as the proposed Calico Solar Project would emit substantially less toxic air containment (TACs) to the environment than other energy sources available in California such as natural gas or biomass, thereby reducing the health risks that would otherwise occur with these non-renewable energy sources. At the same time, the proposed Calico Solar Project would provide much needed electrical power to California residences and businesses, and would contribute to electric reliability. Electrical power is not only necessary to maintain a functioning society, but it also benefits many individuals who rely on powered equipment for their health (such as dialysis equipment and temperature control equipment). For example, it is documented that during heat waves in which elevated air-conditioning use causes an electrical blackout, hospitalizations and deaths due to heat stroke are increased.

5) Noteworthy socioeconomic public benefits include the direct, indirect and induced impacts of a proposed power plant. Direct impacts include permanent jobs and wages. Indirect and induced economic impacts from construction and operations and maintenance would also result.

6) Staff believes that there would be some positive transmission system impacts from the proposed project because the Calico Solar Project would supplement local solar generation and import of power to the SCE system, helping to meet the increasing load demand in San Bernardino County.



**LEGEND**

- Project Boundary (3,392 acres)
- Solar Energy Projects
- Wind Energy Projects
- Bureau of Land Management
- Military
- State
- Private/Other

**Regional Setting with Vicinity Projects**  
**Calico Solar LLC, Phase Two Project**  
**CACA 049537**

US Department of the Interior  
**BUREAU OF LAND MANAGEMENT**  
 California State Office  
 Sacramento, California  
 (916) 978-4400  
[www.ca.blm.gov](http://www.ca.blm.gov)

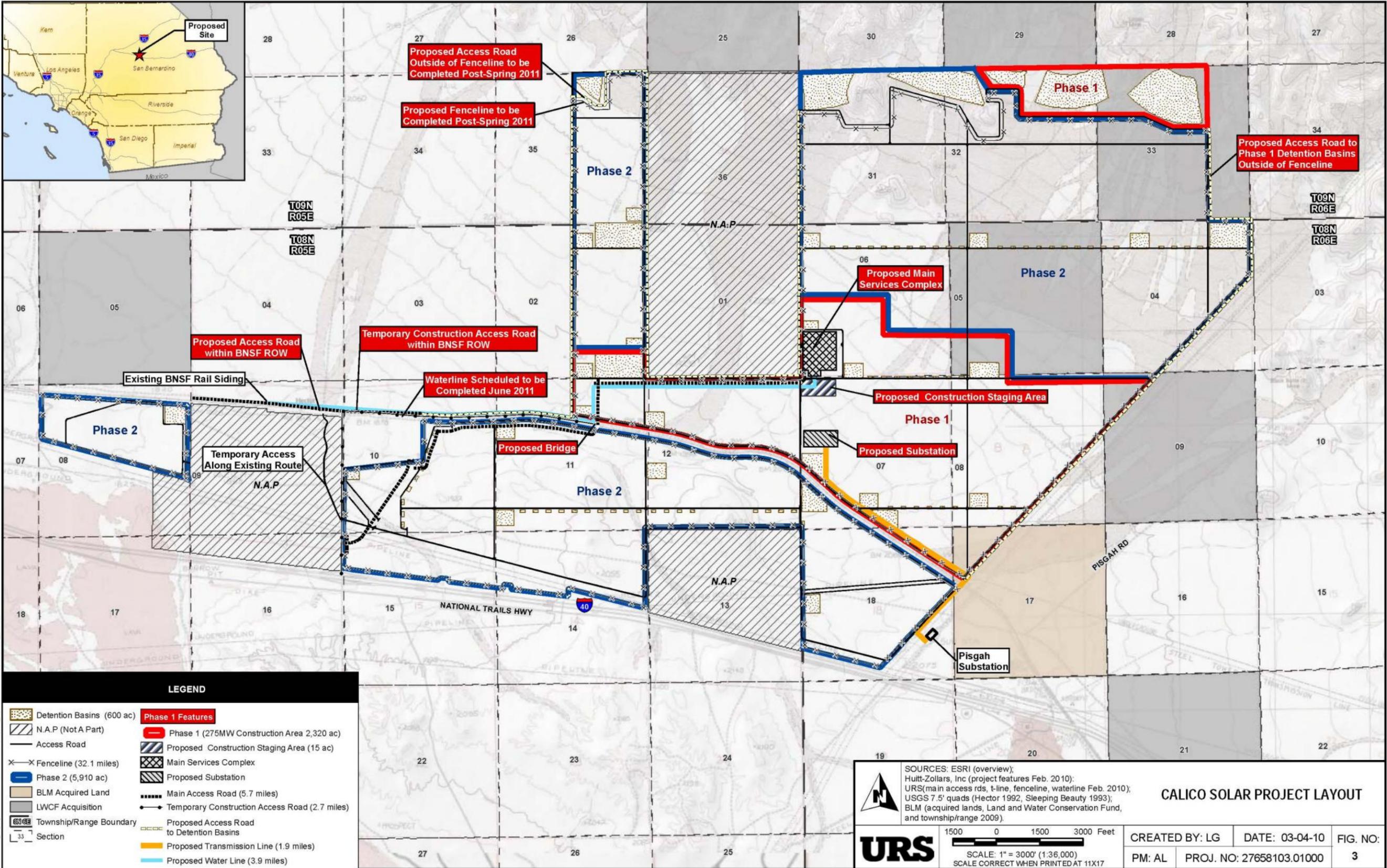
Date Prepared: 2/2/2010

NGS TOPO 100K Image

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**LEGEND**

Detention Basins (600 ac)	Phase 1 Features
N.A.P (Not A Part)	Phase 1 (275MW Construction Area 2,320 ac)
Access Road	Proposed Construction Staging Area (15 ac)
Fenceline (32.1 miles)	Main Services Complex
Phase 2 (5,910 ac)	Proposed Substation
BLM Acquired Land	Main Access Road (5.7 miles)
LWCF Acquisition	Temporary Construction Access Road (2.7 miles)
Township/Range Boundary	Proposed Access Road to Detention Basins
Section	Proposed Transmission Line (1.9 miles)
	Proposed Water Line (3.9 miles)

**URS**

SOURCES: ESRI (overview);  
 Hult-Zollars, Inc (project features Feb. 2010);  
 URS (main access rds, t-line, fenceline, waterline Feb. 2010);  
 USGS 7.5' quads (Hector 1992, Sleeping Beauty 1993);  
 BLM (acquired lands, Land and Water Conservation Fund, and township/range 2009).

**CALICO SOLAR PROJECT LAYOUT**

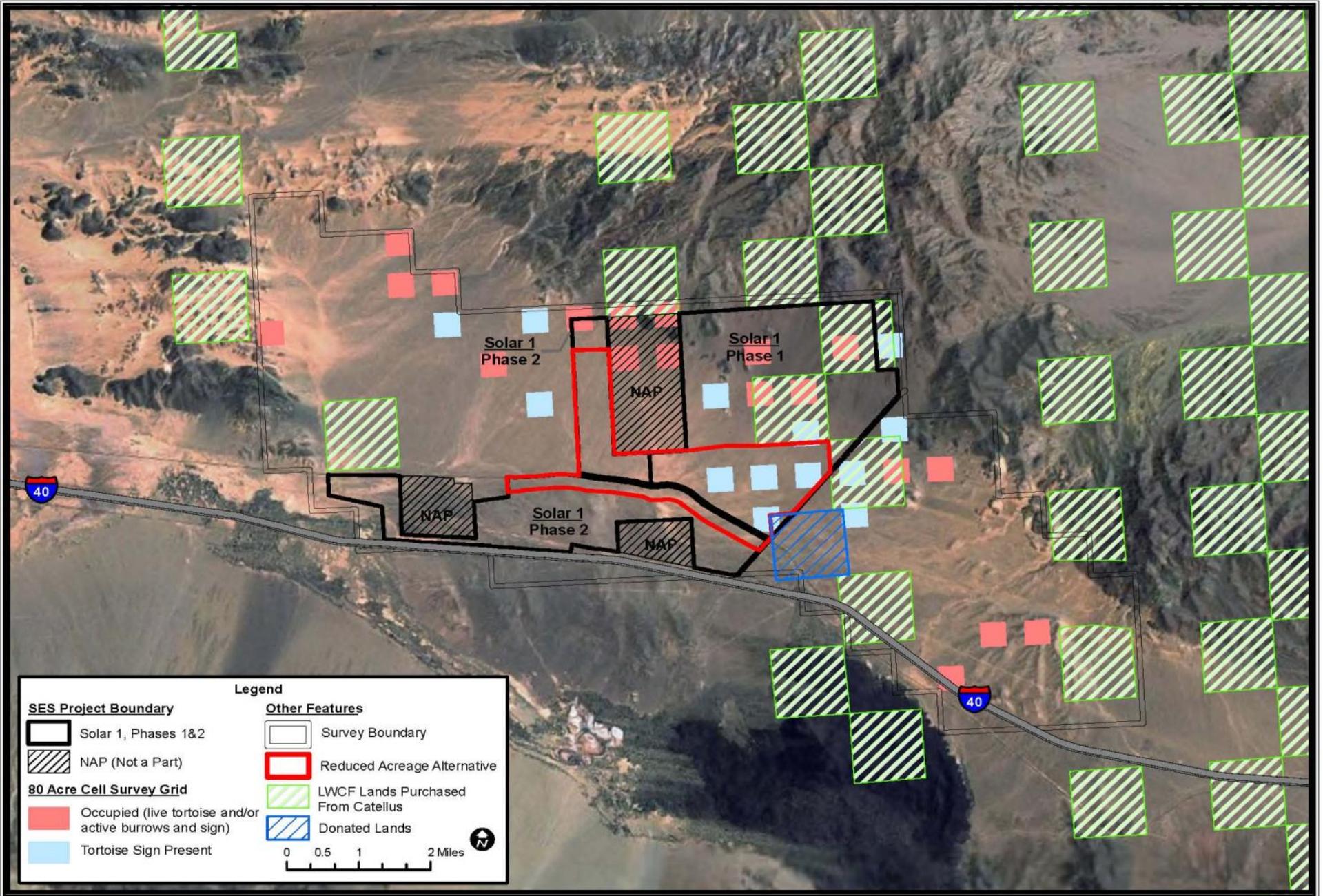
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**ALTERNATIVES - FIGURE 1**  
**SES Solar One - Reduced Acreage Alternative**

JANUARY 2010



ALTERNATIVES