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CALICO SOLAR POWER PROJECT

Supplemental Staff Assessment Addendum

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CALIFORNIA
ENERGY COMMISSION
1516 Ninth Street
Sacramento, CA 95814

http://www.energy.ca.gov/sitingcases/calicosolar/index.html

Christopher Meyer
Project Manager

ROGER JOHNSON
Siting Office Manager

TERRENCE O'BRIEN
Deputy Director
Siting, Transmission and
Environmental Protection Division

MELISSA JONES
Executive Director

CALICO SOLAR PROJECT

SUPPLEMENTAL STAFF ASSESSMENT ADDENDUM

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EXECUTIVE SUMMARY

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INTRODUCTION

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.

On September 3, 2010, the presiding Committee issued an order directing further review of reduced footprint alternatives that minimize the proposed projects impacts to environmental resources, primarily the desert tortoise. The applicant filed six reduced acreage scenarios on September 8, 2010 for discussion at the September 9th staff workshop. As a result of the discussion at the September 9, 2010 staff workshop, the applicant modified scenario 5 into what has subsequently been referred to as reduced acreage scenario 5.5.

The purpose of this Supplemental Staff Assessment (SSA) Addendum is to analyze impacts of the construction and operation of two reduced acreage alternatives to the Calico Solar Project, a proposed solar thermal electricity generation facility located public lands managed by the Bureau of Land Management (BLM) in San Bernardino County, California. This document does not replace the SSA or any of the errata to the SSA, but instead provides additional analysis of the new reduced acreage scenarios filed by the applicant on September 10, 2010.

Based on the additional analysis performed by Energy Commission staff of the two additional reduced acreage scenarios in this SSA Addendum, staff concluded that both represent a reduction of environmental impacts compared to the proposed project analyzed in the SSA. However, in consideration of Executive Order S-14-08, which establishes an updated RPS goal that all retail sellers of electricity shall serve 33% of their load with renewable energy by 2020, staff supports reduced acreage scenario 5.5 due to the additional renewable megawatts provided.

STAFF'S ASSESSMENT

Each technical area section of this SAA Addendum contains a summary of staff's analysis of the two additional reduced acreage scenarios described in detail in Section B.1 of this document. All section except **Biological Resources** and **Soil and Water Resources** concluded that the CEQA impact conclusions related to implementation of Scenario 5.5 or 6 are not different than those for the proposed project, although a reduction in the project acreage of 26 and 32 percent, respectively, would reduce the intensity of many impacts proportionally. Nonetheless, staff in these sections did not

suggest any changes to the proposed conditions of certification or the impact conclusions.

Due to the changes in impacts conclusions and changes to the conditions of certification proposed in the SSA and errata in **Biological Resources** and **Soil and Water Resources**, a summary of these changes has been provided below.

SUMMARY OF PROJECT RELATED IMPACTS

Biological Resources

This summarizes the Energy Commission staff's analysis and conclusions about the impacts of the Calico Solar Project applicant-proposed reduced acreage alternative Scenarios 5.5 and 6. The summary provides a general overview of impacts of these two scenarios to each of the biological resources that are present on the project site, have the potential to be present on the site, or are present off-site and have potential to be indirectly affected by the proposed project. This summary also describes potential mitigation measures that may be employed to avoid or reduce or potentially significant project impacts.

Vegetation and Rare Plants: Impacts to vegetation under Scenarios 5.5 or 6 would be reduced from those as described in the SSA. However, either scenario would have major impacts to the biological resources of the Newberry Springs/Ludlow area of the Mojave Desert similar to the description and analysis in the SSA. Either scenario would eliminate a broad expanse of relatively undisturbed Mojave Desert habitat and would affect all plant and wildlife species on the site, including special status species. Construction of the Scenarios 5.5 or 6 would result in the permanent land use conversion of approximately 4,614 acres (Scenario 5.5) or 4,244 acres (Scenario 6) of the Mojave Desert to support operation of the solar field and appurtenant structures. Either scenario would eliminate project impacts to microphyll woodland as described in the SSA.

Although construction would not result in the complete loss of vegetation, staff considers the construction of exclusion fencing (designed to prevent desert tortoise from entering the project site), vegetation mowing, introduction of shade and added moisture from mirror washing, noise from individual SunCatcher engines, power plant maintenance activity, and risk of invasion by weedy annuals to effectively eliminate the functional use of the site for all but the most disturbance-tolerant native species. Implementation of Conditions of Certification **BIO-1** through **BIO-9** (Designated Biologist Selection, Designated Biologist Duties, Biological Monitor Qualifications, Biological Monitor Duties, Designated Biologist and Biological Monitor Authority, Worker Environmental Awareness Program, Biological Resources Mitigation Implementation and Monitoring Plan, Impact Avoidance and Minimization Measures, and Compliance Verification), **BIO-10** (Revegetation and Compensation for Impacts to Native Vegetation), and **BIO-11** (Weed Management Plan) would reduce project impacts. To address specific construction-related impacts to native vegetation communities and habitat loss, staff has incorporated measures proposed by the applicant and has proposed supplemental measures in Condition of Certification **BIO-17** (Desert Tortoise Habitat Compensation).

The Calico Solar Project site supports several special-status plant species. Nine special-status plant species, one of which is also considered sensitive by the Bureau of Land Management (BLM), but none of which are listed under the federal Endangered Species Act, were identified on or near the proposed project site. Three of these species would be directly impacted by construction of either Scenario 5.5 or 6. Two others occur north of the proposed site boundary, within the project footprint as analyzed in staff's SA/DEIS (March 30, 2010). Staff concludes that the project as analyzed in this SSA Addendum would not affect those locations. Several of the special-status plant species reported in 2007 and 2008 were not found on the site during more thorough field surveys in 2010, and the earlier reports may have been based on misidentifications. Staff believes that impacts to small-flowered androstephium and Utah vine milkweed would be less than significant under CEQA, and that potentially significant impacts to white-margined beardtongue can be reduced below a level of significance with the implementation of staff's proposed impact avoidance and minimization measures. These measures are detailed in staff's proposed Conditions of Certification **BIO-1** through **BIO-11, BIO-12** (Special-Status Plant Impact Avoidance and Minimization)**,** and **BIO-17**.

Common Wildlife and Nesting Birds: Construction under Scenario 5.5 or Scenario 6 would be reduced from those as described in the SSA. However, either scenario would adversely affect common wildlife and nesting birds due to ground disturbance, operation, and the placement of permanent exclusion fencing around the perimeter of the site. Impacts would be similar to those described in the SSA would likely result in the exclusion of most wildlife from the Scenario 5.5 and Scenario 6 project areas. To reduce project effects on wildlife, staff has proposed Conditions of Certification **BIO-1** through **BIO-11**. Impacts to habitat loss would be compensated by the application of Condition of Certification **BIO-17** (Tortoise Habitat Compensation), and impacts to nesting birds would be avoided by the application of **BIO-19** (Pre-Construction Nest Surveys and Impact Avoidance Measures for Migratory Birds).

Construction of either scenario is expected to result in adverse effects on bird species post development and functional use of the site is expected to be low for all but the most disturbance tolerant species. Many avian species avoid developed areas within urban settings and these species would likely also avoid the SunCatchers. As described in the SSA staff cannot assess the potential for bird collisions and mortality associated with these structures but has proposed Condition of Certification **BIO-22** (Avian Protection Plan / Monitoring Bird Impacts from Solar Technology), to monitor the death and injury of birds from collisions with facility features such as reflective mirror-like surfaces and from heat, and bright light from concentrating sunlight.

Desert Tortoise: Implementation of the Scenarios 5.5 or Scenario 6 will result in adverse effects to desert tortoise (federally and State listed as a threatened species) and desert tortoise habitat. Scenario 5.5 would result in the direct loss of approximately 4,614 acres of desert tortoise habitat. Scenario 6 would result in the direct loss of approximately 4,244 acres of desert tortoise habitat.

An estimated 22 desert tortoises occur on the Scenario 5.5 project site and approximately 4 desert tortoises occur on the Scenario 6 project site. Implementation of Scenario 6 would require the translocation of approximately 5 desert tortoises compared

to 13 desert tortoises for Scenario 5.5. Translocation and construction mortality associated with Scenario 5.5 could include approximately 29 tortoises and Scenario 6 could be as high as 6 tortoises. Currently staff, CDFG, BLM, and USFWS are working with the applicant to develop the Final Desert Tortoise Translocation Plan for the project. To reduce effects of Scenario 5.5 and Scenario 6 staff has proposed Conditions of Certification **BIO-1** through **BIO-9** and Conditions of Certification **BIO-15** through **BIO-17**. To reduce effects of the large scale land use conversion, staff, CDFG, and USFWS are requiring compensatory mitigation. The total acreage of desert tortoise compensation land acquisition and protection for Scenario 5.5 and Scenario 6 would be 10,302 acres and 8,452 acres respectfully. Staff estimates total cost of habitat acquisition, protection, and enhancement at $31,079,934 for Scenario 5.5 and $25,545,484 for Scenario 6 if the applicant chooses to do the habitat compensation.

Mojave Fringe-Toed Lizard: Construction impacts under Scenario 5.5 or Scenario 6 would be reduced from those as described in the SSA. Nonetheless the large scale development would result in habitat loss and degradation for this and other sand-associated species and would result in direct impacts to occupied habitat. Staff estimates total acreage of suitable habitat, including sandy drainages and small patches of aeolian sand deposits and micro-dunes scattered throughout the southern portion of the site, as 164.7 acres. Staff believes that avoidance of habitat on-site would not prevent adverse impacts to Mojave fringe-toed lizards, due to habitat fragmentation, road kill, and increased predation (project facilities would serve as perch sites for foraging raptors, facilitating their ability to find and capture lizards and other ground-dwelling species). Staff has proposed Condition of Certification **BIO-13** to mitigate loss of suitable habitat for this species. In addition, because the BNSF will require a minimum 223-foot set back from the railroad the project will not preclude east to west movement along the north and south sides of the railroad.

Burrowing Owl: Construction impacts under Scenarios 5.5 or Scenario 6 would be reduced from those as described in the SSA; however construction of either scenario would result in direct loss of foraging habitat for the burrowing owl (a BLM sensitive species and a California Species of Special Concern). Two burrowing owls and eleven active burrows were recorded by the applicant north of the project boundary, near the toe of the Cady Mountains and numerous burrows that could support this species occur on the project site under either scenario. Staff's proposed Condition of Certification **BIO-21** (Burrowing Owl Impact Avoidance and Minimization Measures) provides minimization and avoidance measures for this species. Staff's proposed Condition of Certification **BIO-17**, the compensatory mitigation plan for desert tortoise, would likely offset burrowing owl habitat loss provided the species occurs on the potential relocation sites.

Golden Eagle: Construction impacts under Scenario 5.5 or Scenario 6 would be reduced from those as described in the SSA; however construction of either scenario would result in direct loss of foraging habitat for the Golden eagle, a BLM sensitive and California Fully Protected species (i.e., may not be taken or possessed as defined under State law). Nests occur within 3.5 miles of the project site and this species has been observed foraging over the project area. The large scale land use conversion would remove approximately 4,614 acres (Scenario 5.5) or 4,244 acres (Scenario 6) of

foraging habitat in the region. This loss could substantially interfere with normal breeding, feeding, or sheltering behavior, by causing golden eagles to forage more widely and therefore spend less time at or near their nests. This effect could be considered a "take," pursuant to the federal Bald and Golden Eagle Protection Act. Staff has proposed Conditions of Certification **BIO-20** (Pre- Construction Surveys for Golden Eagles) to avoid impacts to nesting golden eagles and ensure project compliance with federal requirements. To address potential collision concerns (discussed below under operational effects) staff has proposed Condition of Certification **BIO-22** (Avian Protection Plan / Monitoring Bird Impacts from Solar Technology).

Nelson's Bighorn Sheep: Nelson's bighorn sheep, a BLM Sensitive species, is well known from the Cady Mountains, where its population consists of at least 300 animals (SES 2009aa; DW 2010). During surveys conducted for golden eagles in the winter of 2010, the applicant detected 62 sheep within 10 miles of the proposed project. Under Scenario 5.5 and Scenario 6 the project footprints would be reduced and in some cases over one mile of additional open space will be avoided between the project and the upper bajadas of the Cady Mountains, an area generally considered potential spring foraging habitat. The project area as analyzed in this SSA does not include year-round occupied habitat (DW 2010); however the reduced project footprint associated with either scenario provides access to additional foraging habitat. Scenario 5.5 or 6 could still act as a barrier to movement for sheep using the south side of the Cady Mountains or their foothills to traverse to winter ranges in the Bristol Mountains; however these footprints avoid most of the lower bajadas. The applicant has also proposed general monitoring of sheep behavior if Nelson's bighorn sheep are seen within 200 feet of construction activities. Staff has incorporated the applicant's proposal into staff's proposed Condition of Certification **BIO-23** (Nelson's Bighorn Sheep Mitigation) and recommended additional measures to require construction monitoring and the potential cessation of construction activities should sheep be present within 500 feet of the project area.

American Badger and Kit Fox: Construction impacts under Scenario 5.5 or 6 would be reduced from those as described in the SSA. American badgers and kit fox were detected on the project site and construction of either Scenario would cause direct effects to badgers and kit fox. Because of the large size of the project, numerous badgers or kit foxes may be affected. Animals confined within the exclusionary fence would be subject to ongoing long-term impacts that may result in mortality from road kill, loss or alteration of foraging habitat, overlapping territories and barriers to dispersal. Staff believes that avoidance of badgers and kit fox alone will not mitigate the direct, indirect, and operational effects of the Calico Solar Project. Staff's proposed Condition of Certification **BIO-24** (American Badger and Desert Kit Fox Impact Avoidance and Minimization Measures) requires that prior to ground disturbance, a qualified biologist perform a preconstruction survey for badger and kit fox dens in the project area, including areas within 250 feet of all project facilities, utility corridors, and access roads. If present, the applicant will flag and avoid occupied badger and kit fox dens during ground-disturbing activities and establish a buffer to avoid loss of maternity dens. Should the applicant need to work in an area with occupied badger dens, the applicant will slowly excavate the den in accordance with Condition of Certification **BIO-24**. Staff's proposed Condition of Certification **BIO-17**, the compensatory mitigation plan for desert

tortoise habitat, would also offset the loss of habitat for these species and reduce the impact from habitat loss to less-than-significant levels under CEQA.

Jurisdictional Waters: Scenario 5.5 and Scenario 6 support 155.2 acres and 129.8 acres of State Jurisdictional Waters respectively. All of these streambeds would be directly or indirectly affected by project construction and operation. Staff has proposed Condition of Certification **BIO-26** (Streambed Impact Minimization and Compensation Measures), and has provided additional recommendations and guidance consistent with typical CDFG Streambed Alteration Agreement requirements. These include the acquisition of offsite habitat and the implementation of Best Management Practices. Scenario 5.5 and Scenario 6 avoid drainages supporting smoke tree and catclaw acacia habitats. With implementation of staff's proposed Condition of Certification **BIO-26**, impacts to State jurisdictional waters associated with the desert washes would be mitigated to less-than-significant levels under CEQA. In addition, staff has identified Condition of Certification **BIO-28** (Channel Decommissioning and Reclamation Plan), to be implemented upon project termination.

Cumulative Impacts: Staff concludes that without mitigation, the Calico Solar Project will contribute 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 these resources. These 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.

Staff concludes that, with the incorporation of recommended Conditions of Certification **BIO-1** through **BIO-31**, the proposed Calico Solar Project would be in compliance with applicable Laws, Ordinances, Regulations, and Standards (LORS).

Soil and Water Resources

Based on the information provided to date, staff has determined that construction, operation, and decommissioning of either of the additional reduced acreage scenarios (5.5 or 6) for the Calico Solar Project could potentially impact soil and water resources. Where 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 measures needed to ensure conformity with applicable laws, ordinances, regulations and standards, are included as conditions of certification. Staff's conclusions, based on analysis of the information submitted to date, are as follows:

1. The reduced acreage scenarios would be within the same footprints as the proposed project, in the Mojave Desert of San Bernardino County in an area characterized by braided stream channels, flash flooding, alluvial fan conditions, low rainfall, sparse vegetation, and the potential for wind erosion/deposition.
2. Scenario 5.5 proposes to place 26,540 solar dishes, known as SunCatchers, on individual pole foundations within areas known to be subject to flash flooding and erosion and sedimentation. Scenario 6 proposes to install 24,156 SunCatchers within the boundaries of Scenario 5.5. Project-related changes to the braided and

alluvial fan stream hydraulic conditions could result in on-site erosion, stream bed degradation or aggradation, and erosion and sediment deposition impacts to adjacent land. SunCatchers within the stream courses could be subject to destabilization by stream scour. Impacts to soils related to wind erosion and runoff-borne erosion are potentially significant, as are impacts to surface water quality from sedimentation and the introduction of foreign materials, including potential contaminants, to the project area. Compliance with laws, ordinances, regulations and standards and Conditions of Certification **SOIL&WATER-1**, **SOIL&WATER-2**, **SOIL&WATER-3** and **SOIL&WATER-5** will mitigate these potential impacts to a level less than significant.

3. Staff reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 and the assessment from Dr. Chang including the applicant's proposed revisions to **Soil & Water-8**, filed on September 8, 2010, and the Applicant's Submittal of Revised Drainage Layout Figures, dated September 14, 2010 for the Calico Solar Project in accordance with the California Environmental Quality Act (CEQA).

   Staff acknowledges that Dr. Chang's recommendations in his September 8, 2010, *ASSESSMENT OF DETENTION BASINS/DEBRIS BASINS FOR CALICO SOLAR SITE* include eliminating the previously proposed detention basins from the project site due to potential adverse impacts to the fluvial system. Dr. Chang recommends that installation of "…SunCatchers stay away from those washes with larger flow depths and greater potential for erosion and sediment." Furthermore, Dr. Chang states that "…the proposed solar units will have insignificant effects on the arid-land hydrology of the project site." While these recommendations and conclusions may be valid, there was a lack of backup documentation such as references, drawings, studies, calculations or models provided to review and evaluate.

   Staff also reviewed the two figures from the Applicant's Submittal of Revised Drainage Layout Figures, dated September 14, 2010, showing the revised drainage layouts for Scenario 5.5 and Scenario 6. These figures show existing drainage patterns/post-construction flow for the project site overlain on topographic maps from 1992/1993.

   Based on our review of the submitted documents discussed herein, staff believes Condition of Certification **SOIL&WATER-8** largely addresses the proposed design changes however minor revisions are appropriate to address the specific design intent. Staff believes the proposed revisions to Condition of Certification shown below provide the necessary performance measures to ensure there is a framework for design development applicable to alternative scenarios 5.5 and 6. In addition, since the applicant has not submitted the comprehensive detail that staff needs to analyze the ability of any necessary drainages basins to retain maximum flows and protect the project from flooding staff still recommends adoption of Conditions of Certification **GEO-2** and **-3**, which contain performance standards that ensure that the design of the debris basin dams will comply with current engineering practices and existing regulations, and prevent significant impacts.

4. Basins or other forms of flood protection have not been addressed for drainages that traverse the project and enter the proposed solar array. Impacts due to flooding in this area are potentially significant without adequate mitigation. This condition leaves

portions of the project subject to significant adverse impact due to flooding. Any proposed designs to mitigate these potential flood-related impacts must comply with requirements set forth in Conditions of Certification **SOIL&WATER-1**, **-2**, **-3** and **-8**, which will ensure that no adverse impacts due to flooding will occur.

5. The applicant's Draft Drainage, Erosion, and Sedimentation Control Plan may mitigate the potential on site project-related storm water and sediment impacts. However, the calculations and assumptions used to evaluate potential storm water and sedimentation impacts in the Draft Plan are imprecise and have limitations and uncertainties associated with them such that the magnitude of potential impacts that could occur cannot be determined precisely. As a result, staff drafted Conditions of Certification **SOIL&WATER-1**, **-2**, and **-3** to define specific methods of design analysis, development of best management practices, and monitoring and reporting procedures to mitigate impacts related to flooding, erosion, sedimentation, and stream morphological changes.
6. The applicant has not provided information necessary to complete development of requirements for dredge and fill in waters of the State. Compliance with LORS, particularly the Clean Water Act requirements, will insure no adverse impacts to waters of the State. In addition, staff drafted Conditions of Certification **SOIL&WATER-1**, **-2**, and **-3** to define specific methods of design analysis, development of best management practices, and monitoring and reporting procedures to mitigate impacts related to flooding, erosion, sedimentation, and stream morphological changes.
7. Surface water and groundwater quality could be affected by construction activities and ongoing operational activities on the project site including mirror washing, vehicle use and fueling, storage of oils and chemicals, the proposed septic and leach field system for sanitary wastes, and wastes generated from the water treatment system. These impacts are potentially significant. Conditions of Certification **SOIL&WATER-1**, **-2**, **-3 and -5** will mitigate these potential impacts to a level less than significant. The applicant has not provided information necessary to complete development of requirements for discharges of brine waters to evaporation ponds or sanitary septic systems. However, staff has identified performance standards that will ensure no significant adverse impacts will occur, and included these performance standards in Conditions of Certification **SOIL&WATER-2** and **-3** and **Soil and Water Appendix B.**
8. There is uncertainty in the long-term reliability of the proposed water supply. Condition of Certification **SOIL&WATER-9** is proposed to provide water conservation and plans for an alternative supply, if necessary, to ensure power plant and potable water demands are met for the project.
9. Dust control (during both construction and operation) and mirror washing (during operation) will comprise the primary water uses for the project. Daily maximum water use is estimated to be less than 43.7gallons per minute (gpm) during construction and less than 69.8 gpm during operation (maximum annual construction and operational water use is less than 142.4 acre feet per year (AFY) and less than 20.4 AFY, respectively). Condition of Certification **SOIL&WATER-4** ensures groundwater storage depletion and water level declines due to project groundwater use are less

than significant by limiting annual construction water use to 145 AF and annual operational water use to 21 AF.

10. Water budget estimates and simulated drawdown due to proposed project pumping indicate groundwater storage depletion and water level declines will be less than significant. Condition of Certification **SOIL&WATER-4** limits annual groundwater use during construction and project operations. Condition of Certification **SOIL&WATER-7** shall confirm these findings by requiring groundwater level monitoring and reporting to document pre-project groundwater conditions and measure changes that occur as a result of groundwater use for project construction and operations.
11. Waste water will be generated as a byproduct of water treatment processes, equipment maintenance and from sanitary practices. Conditions of Certification **SOIL&WATER-2** and **-5** are proposed by staff to ensure impacts caused by generation and disposal of wastewater would be less than significant.
12. The proposed project would use air-cooled radiators fitted on each individual engine for heat rejection. Use of this technology would substantially reduce potential water use and is consistent with Energy Commission water policy.
13. Conformance with the Conditions of Certification presented in the SSA will assure the project can be constructed to comply with LORS and render environmental impacts to levels that are less than significant,

A – INTRODUCTION

Christopher Meyer

INTRODUCTION

The purpose of this Supplemental Staff Assessment (SSA) Addendum is to analyze impacts of the construction and operation of two reduced acreage alternatives to the Calico Solar Project, a proposed solar thermal electricity generation facility located public lands managed by the Bureau of Land Management (BLM) in San Bernardino County, California. This document does not replace the SSA or any of the errata to the SSA, but instead provides additional analysis of the new reduced acreage scenarios filed by the applicant on September 10, 2010.

When considering an energy project for licensing, the Energy Commission is the lead state agency for evaluating environmental impacts of a proposed licensing action under the California Environmental Quality Act (CEQA). The SSA, errata to the SSA, and this SSA Addendum are the result of the Energy Commission staff's environmental evaluation process, and are functionally equivalent to the preparation of an Environmental Impact Report (EIR).

Because the proposed project is located on public lands managed by the BLM, BLM is the lead federal agency for evaluating environmental impacts of the proposed right-of-way grant under the National Environmental Policy Act (NEPA). The FEIS is the BLM's environmental evaluation of the potential impacts that could result from the authorization of the requested right-of-way.

When the applicant filed separate applications with the Energy Commission and the BLM to obtain separate approvals to develop the project, it was deemed to be in the interest of both agencies and the public to share in the preparation of a joint environmental analysis of the proposed project to avoid duplication of staff efforts, to share staff expertise and information, to promote intergovernmental coordination at the local, state, and federal levels, and to facilitate public review by providing a joint SA/DEIS and a more efficient environmental review process. The Energy Commission and the BLM have been jointly conducting the state and federal environmental review for the Calico Solar Project and released a joint SA/DEIS; however, the two agencies determined that it was necessary to produce separate, but coordinated, final environmental reviews and decision documents.

This SSA Addendum is a staff document. It is neither a document of the California Energy Commission Siting Committee, nor a draft decision by the Siting Committee.

The analyses contained in this SSA Addendum are updated from the SSA and based upon additional information from the applicant, parties and the public, as well as information received at the September 9, 2010 staff workshop. The SSA Addendum presents conclusions about potential environmental impacts and conformity with LORS, as well as any changes to the previously proposed conditions of certification/mitigation measures that apply to the design, construction, operation, and closure of the facility. Each proposed change to a condition of certification/mitigation measure is followed by a proposed means of verification that the condition has been met.

BACKGROUND

Calico Solar, LLC's business model includes the development and deployment of the Stirling solar dish systems (referred to as SunCatchers) technology. It has formed the limited liability corporation Calico Solar (referred to as applicant or Calico Solar, LLC hereafter) for the purposes of filing ROW applications with the BLM for the use of public land and for filing an AFC with the Energy Commission. Calico Solar, LLC has executed Power Purchase Agreements and interconnection agreements with Southern California Edison (SCE) to deliver renewable energy to the California market.

Although the applicant originally applied for a ROW grant from the BLM to construct the Calico Solar Project on 8,230 acres of public land managed by the BLM, a review of the environmental impacts identified in the SA/DEIS prompted the resource and regulatory agencies to require a 4,000 foot buffer between the base of the Cady Mountains and the northern boundary of the project. This change reduced the proposed project to 6,215 aces, however the project would still use approximately 32 acre feet of water per year, produce a nominal 850 MW of electricity, and operate for a term of 40 years. Calico Solar, LLC has also filed an AFC with the Energy Commission. Under California law, the Energy Commission has regulatory authority for licensing applications for thermal power generating facilities 50 MW or greater in size.

On September 3, 2010, the presiding Committee issued an order directing further review of reduced footprint alternatives that minimize the proposed projects impacts to environmental resources, primarily the desert tortoise. The applicant filed six reduced acreage scenarios on September 8, 2010 for discussion at the September 9th staff workshop. As a result of the discussion at the September 9, 2010 staff workshop, the applicant modified scenario 5 into what has subsequently been referred to as reduced acreage scenario 5.5.

ORGANIZATION OF THE DOCUMENT

The SAA Addendum begins with an Executive Summary, Introduction, and Proposed Project Description (describing the new reduced acreage scenarios). The environmental, engineering, and public health and safety analyses of the proposed reduced acreage scenarios are contained in 20 separate chapters. They include the following: Air Quality, Biological Resources, Cultural Resources and Native American Values, Hazardous Materials Management, Land Use Recreation and Wilderness, Noise and Vibration, Public Health and Safety, Socioeconomics and Environmental Justice, Soil and Water Resources, Traffic and Transportation, Transmission Line Safety and Nuisance, Visual Resources, Waste Management, Worker Safety and Fire Protection, Geology Soils and Paleontological and Mineral Resources, Geologic Stability, Facility Design, Power Plant Efficiency, Power Plant Reliability, and Transmission System Engineering. These chapters are followed by the general project conditions.

As stated above, the technical discussion is limited to changes in staff's analysis and/or conclusions based on the new reduced acreage alternatives and any background from the SSA necessary to provide clarity to staff's conclusions in this SSA Addendum.

B.1 – PROPOSED PROJECT

B.1.1 INTRODUCTION

On December 2, 2008, Stirling Engine Systems Solar One, LLC, (SES Solar Three, LLC and SES Solar Six, LLC) submitted an Application for Certification (AFC) to the California Energy Commission to construct and operate the Stirling Energy Systems Solar One Project (SES Solar One) on public land managed by the Bureau of Land Management (BLM) in San Bernardino County, California. On May 6, 2009, the Energy Commission accepted the AFC as complete. In January 2010, the project formally changed its name to the Calico Solar Project. The applicant, SES Solar Three, LLC, was merged into SES Solar Six, LLC, and that surviving entity was re-named Calico Solar, LLC. Calico Solar is a subsidiary of Tessera Solar™. The applicant's development plans have been updated several times since filing its original right-of-way (ROW) application with the BLM and/or AFC applications with the Energy Commission. The most substantial revisions are summarized in **Project Description Table 1** of the Supplemental Staff Assessment filed on July 21, 2010.

B.1.2 PROJECT LOCATION

The two new reduced acreage scenarios analyzed in this document are located within the footprint of the previously analyzed Calico Solar Project site located on public land managed by the BLM. The proposed project site is approximately 37 miles east of Barstow, California, 17 miles east of Newberry Springs, 57 miles northeast of Victorville, and approximately 115 miles east of Los Angeles (straight line distances). The following sections or portions of sections in Townships 8 and 9 North, Ranges 5 and 6 East of the San Bernardino Meridian identify the project site and the planned boundary for development of the Calico Solar Project.

B.1.4 PROJECT DESCRIPTION

The proposed Calico Solar Project analyzed in the Supplemental Staff Assessment was a nominal 850-megawatt (MW) Solar Stirling Engine project. The project was proposed for development in two phases. Phase I included 11,000 SunCatchers located on approximately 2,327 acres to produce 275 MW. Phase II included an additional 23,000 SunCatchers on an additional approximately 3,888 acres to produce an additional 575 MW for the total 850 MW planned production. The total area required for both phases, including the area for the operation and administration building, the maintenance building, and the substation building, was approximately 6,215 acres. The site was reduced from the 8,230 acres project proposed in the Application of Certification to avoid impacts to environmental impacts identified by the Renewable Energy Action Team agencies.

Based on the September 3, 2010 Committee Order Directing Further Review of Reduced Footprint Alternatives and Notice of Committee Conference, the applicant developed six new reduced acreage scenarios. The subsequent staff workshop on September 9, 2010 narrowed these alternatives to two new reduced acreage scenarios

(Scenario 5.5 and Scenario 6) that were further developed by the applicant and have been analyzed by staff in this Supplemental Staff Assessment Addendum.

REDUCED ACREAGE SCENARIO 5.5

The Scenario 5.5 Alternative would be a 663.5 MW solar facility located within the boundaries of the proposed project as defined by Calico Solar. This alternative is analyzed because it eliminates about 26% of the proposed project area so all impacts are reduced, especially those related to desert washes, biological resources, and maximizes the amount of renewable energy provided by the project.

The Scenario 5.5 Alternative would consist of 26,540 SunCatchers with a net generating capacity of approximately 663.5 MW occupying approximately 4,613 acres of land. This alternative would retain 78% of the proposed SunCatchers and would affect 74% of the land of the proposed 850 MW project.

The boundaries of the Scenario 5.5 Alternative are shown in **Project Description Figure 1**. This area was designed to protect the largest number of tortoise and burrows while maximizing the amount of energy the project produces. It also excludes some but not all of the donated lands and lands acquired by BLM with conservation funds (portions of Sections 5 and 7 of T8N, R6E remain within the Scenario 5.5 Alternative).

Similar to the proposed project, the Scenario 5.5 Alternative would transmit power to the grid through the SCE Pisgah Substation and would require the same infrastructure as the proposed project including water storage tanks, a transmission line, road access, a main services complex, and a substation (Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6, TN 58411). The main services complex, primary water well, and substation and onsite transmission line for the Scenario 5.5 Alternative would remain at the location proposed for the proposed project. However, Scenario 5.5 Alternative would eliminate the detention basins along the northern boundary of the proposed project.

As stated above, the Scenario 5.5 Alternative is evaluated in this Addendum because it appears to be economically feasible and would substantially reduce the impacts of the project.

REDUCED ACREAGE SCENARIO 6

The Scenario 6 Alternative would be a 603.9 MW solar facility located within the boundaries of the proposed project as defined by Calico Solar. This alternative is analyzed because it eliminates about 32% of the proposed project area so all impacts are reduced, especially those related to desert washes, biological resources, and desert tortoise.

The Scenario 6 Alternative would consist of 24,156 SunCatchers with a net generating capacity of approximately 603.9 MW occupying approximately 4,244 acres of land. This alternative would retain 71% of the proposed SunCatchers and would affect 68% of the land of the proposed 850 MW project.

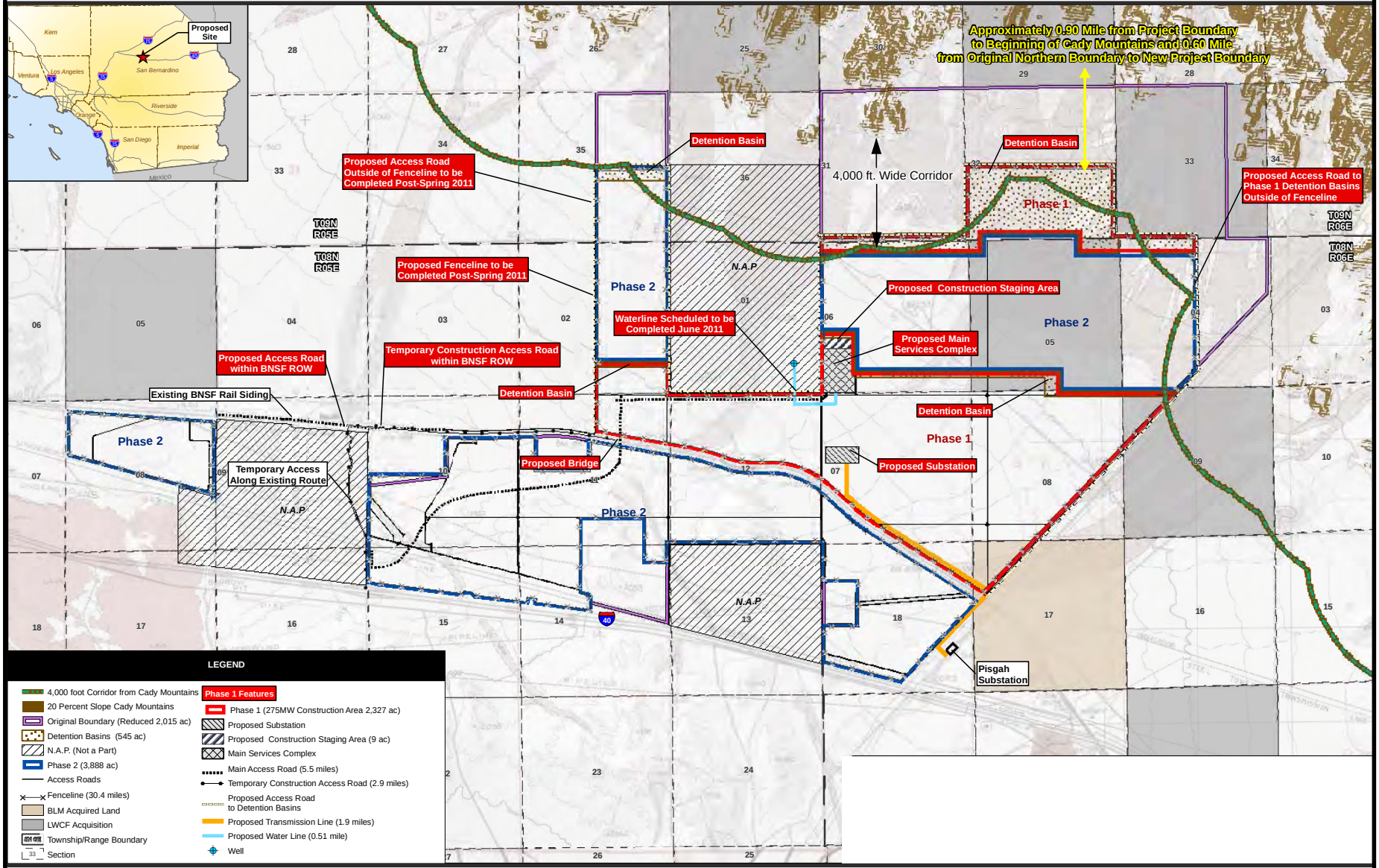
The boundaries of the Scenario 6 Alternative are shown in **Project Description Figure 2**. This area was designed to protect the largest number of tortoise and burrows and eliminate all impacts to the highest quality desert tortoise habitat within the proposed project boundaries. It also excludes some but not all of the donated lands and lands acquired by BLM with conservation funds (portions of Sections 5 and 7 of T8N, R6E remain within the Scenario 5.5 Alternative).

Similar to the proposed project, the Scenario 6 Alternative would transmit power to the grid through the SCE Pisgah Substation and would require the same infrastructure as the proposed project including water storage tanks, a transmission line, road access, a main services complex, and a substation (Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6, TN 58411). The main services complex, primary water well, and substation and onsite transmission line for the Scenario 6 Alternative would remain at the location proposed for the proposed project. However, Scenario 6 Alternative would eliminate the detention basins along the northern boundary of the proposed project.

As stated above, the Scenario 6 Alternative is evaluated in this Addendum because it appears to be economically feasible and would substantially reduce the impacts of the project.

PROJECT DESCRIPTION - FIGURE 1

Calico Solar Project - Existing Projects - Project Layout



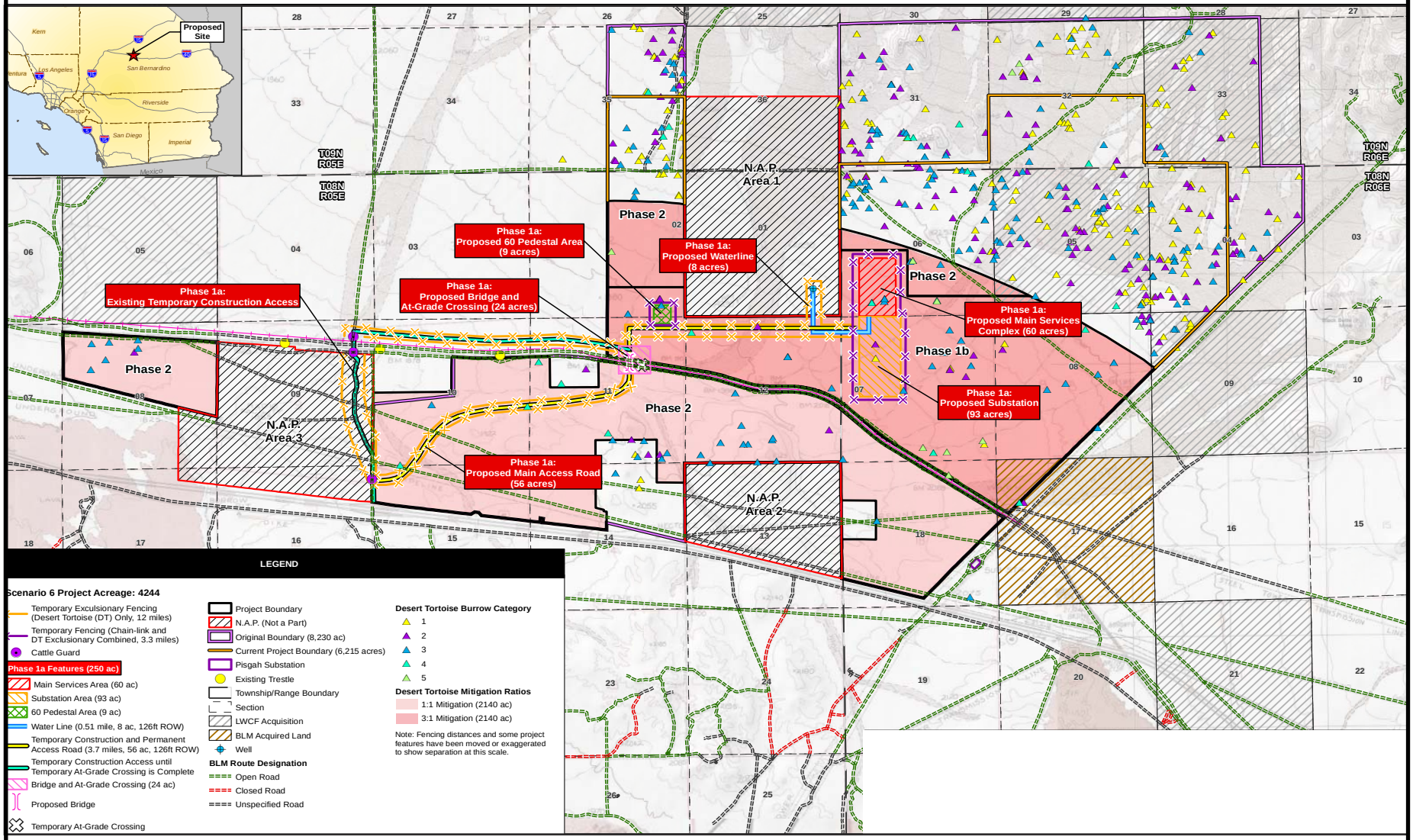
PROJECT DESCRIPTION

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: URS

PROJECT DESCRIPTION - FIGURE 2

Calico Solar Project - Existing Projects - Project Layout



PROJECT DESCRIPTION

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: URS

C.1 – AIR QUALITY

Testimony of William Walters, P.E.

C.1.1 SUMMARY OF CONCLUSIONS

Energy Commission staff have reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 information filed on September 10, 2010 for the Calico Solar Project in accordance with the California Environmental Quality Act (CEQA). Based on this review and the analysis completed by staff on proposed project and the Reduced Acreage Alternative in the Supplemental Staff Assessment, staff concludes that, with the adoption of the recommended conditions of certification similar to the proposed project, neither of the two additional reduced Calico Solar Project alternatives would cause significant direct or indirect air quality impacts or contribute to a cumulative air quality impact in the project site area. Additionally, these project boundary alternatives would continue to comply with all applicable laws, ordinances, regulations, and standards.

The proposed reduced acreage scenarios 5.5 and 6 represent a reduction in the project acreage of 26 and 32 percent and a reduction in project generation of approximately 22 and 29 percent[1], respectively. This would reduce the overall direct project construction criteria pollutant emissions, although the maximum daily or annual construction emissions may not change, and would reduce the annual direct criteria pollutant operating emissions, although the maximum daily operation may not change, due to the reduction in necessary maintenance vehicle use. However, the reduction in generating capacity would also reduce the beneficial impacts of displacing fossil fuel fired generation and the associated criteria pollutant emission reductions within the Western United States.

Staff continues to find, for these Updated Reduced Project Boundary Scenario alternatives, that without appropriate mitigation measures the project's construction and operation impacts could be significant. Therefore, staff continues to recommend staff conditions **AQ-SC1** through **AQ-SC9** to mitigate the project's construction and operation emission impacts. Additionally, the stationary sources proposed for the project would not change for these alternatives, so staff continues to recommend the district's FDOC conditions of certification **AQ-1** through **AQ-15**.

[1] Scenario 5.5 has a capacity of 663.5 MW and Scenario 6 has a capacity of MW 603.9 versus the proposed project MW capacity of 850 MW.

APPENDIX AIR-1 - GREENHOUSE GAS EMISSIONS

Testimony of William Walters, P.E.

SUMMARY OF CONCLUSIONS

Energy Commission staff have reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 information filed on September 10, 2010 for the Calico Solar Project in accordance with the California Environmental Quality Act (CEQA). Based on this review and the analysis completed by staff on proposed project and the Reduced Acreage Alternative in the Supplemental Staff Assessment, staff concludes that neither of the two additional reduced Calico Solar Project alternatives would cause significant greenhouse gas (GHG) impacts. Additionally, these project boundary alternatives would continue to comply with all applicable laws, ordinances, regulations, and standards. No Conditions of Certification are proposed.

The proposed reduced acreage scenarios 5.5 and 6 represent a reduction in the project acreage of 26 and 32 percent and a reduction in project generation of approximately 22 and 29 percent, respectively. This would reduce the overall direct and indirect project construction GHG emissions, and would reduce the annual direct GHG operating emissions. However, the reduction in generating capacity would also reduce the beneficial impacts of displacing fossil fuel fired generation and associated system-wide GHG emission reductions, in amounts that are much greater than the reductions in direct and indirect construction and direct operating emissions, within the Western United States. However, the overall GHG emission impacts for these two reduced acreage scenarios would remain beneficial.

C.2 – BIOLOGICAL RESOURCES

Testimony of Chris Huntley, Scott D. White, and Carolyn Chainey-Davis

PREFACE

Section C.2 of the Supplemental Staff Assessment (SSA) for the Calico Solar Project (published July 21, 2010) analyzed impacts to biological resources of the proposed 6215-acre project and a reduced-acreage alternative design of approximately 2600 acres. Since that date, staff has provided errata and supplemental analyses of biological resources in several documents docketed as follows:

Rebuttal Testimony and Errata (tn: 57800, July 29, 2010): Corrections to cost calculations in Conditions of Certification **BIO-17** (Desert Tortoise Compensatory Mitigation) and **BIO-18** (Raven Monitoring, Management and Control Plan); (tn: 57870. August 4, 2010): Exhibit 305 – Biological Appendix A, PWA Geomorphic Assessment Report; and in supporting impacts analysis section, including **Biological Resources Tables 5** and **7**.

Staff's Second Errata to the Supplemental Staff Assessment (tn: 58071, August 17, 2010): Revisions to the desert tortoise impacts analysis; text correction to Section C.2.7 regarding the BLM West Mojave Management Plan; revisions to Conditions of Certification **BIO-8** (Impact Avoidance and Minimization Measures), **BIO-10** (Revegetation Plan and Compensation for Impacts to Native Vegetation Communities), **BIO-12** (Special-status Plant Impact Avoidance and Minimization); **BIO-15** (Desert Tortoise Clearance Surveys and Exclusion Fencing), **BIO-16** (Desert Tortoise Translocation Plan); **BIO-19** (Pre-Construction Nest Surveys and Impact Avoidance Measures for Migratory Birds), and **BIO-21** (Burrowing Owl Impact Avoidance and Minimization Measures).

Staff Comments to Question Provided by Hearing Officer Regarding Desert Tortoise (Exhibit 313, posted August 26, 2010).

Additional Staff Revision Regarding Biological Conditions (tn: 58212, August 27, 2010): Revisions to staff's recommended Conditions of Certification **BIO-13** (Mojave Fringe-toed Lizard Mitigation) and **BIO-17** (Desert Tortoise Compensatory Mitigation), and staff's recommended new **Condition of Certification BIO-31** (Project Construction Compensation and Phasing Plan). The same revision also included **Revised Biological Resources Table 5** (Summary of Compensation Lands Costs), **Revised Biological Resources Table 6** (Mojave Fringe-toed Lizard Compensation Cost Estimate), **Revised Biological Resources Table 7** (Desert Tortoise Compensation Cost Estimate), further revisions to staff's recommended Conditions of Certification **BIO-12** (Special-status Plant Impact Avoidance and Minimization), **BIO-18** (Raven Monitoring, Management and Control Plan), **BIO-21** (Burrowing Owl Impact Avoidance and Minimization Measures), **BIO-22** (Avian Protection Plan/Monitoring Bird Impacts From Solar Technology), and new revisions to Condition of Certification **BIO-26** (Streambed Impact Minimization and Compensation Measures).

On September 3, 2010, the Committee published an Order Directing Further Review of Reduced Footprint Alternatives, encouraging the staff and applicant to hold a workshop to discuss alternative project designs. Based on this direction the applicant submitted several alternative scenarios. A workshop was held on September 9, 2010, in which staff proposed to analyze two alternative scenarios described below.

Desert tortoise compensation ratios: In prior written and oral testimony, staff has recommended compensation mitigation at a 5:1 ratio for desert tortoise habitat in the northern portion of the 6,215-acre proposed project area. In consultation with California Department of Fish and Game biologists, staff had identified a 2,198-acre area that included the northern portion of Phase 1b (proposed as storm water detention or retention basins) and all of the proposed Phase 2 area north of the BNSF railroad tracks. See **Revised Biological Resources Table 18** in staff's revised Condition of Certification **BIO-17** (Desert Tortoise Compensatory Mitigation, tn: 58212, August 27, 2010) and **Biological Resources Figure 1** in the SSA.

The applicant proposed revising the boundaries of the 5:1 compensation area during oral testimony on August 25, 2010 and in Applicant's Submittal of Reduced Project Boundary Scenarios (tn: 58322 Figures 1-12, docketed September 8, 2010). Staff has reviewed the proposed revisions to the 5:1 compensation mitigation boundary and agrees that this boundary more accurately reflects the portion of the proposed project site with the highest density of desert tortoises and their sign. Staff uses this revised boundary in the analysis and recommendations that follow.

Staff's recommended Conditions of Certification: This Staff Assessment Addendum provides staff's analysis of biological resource impacts of the two alternative scenarios. Throughout this Addendum, all references to conditions of certification refer to staff's most recent docketed revision, either in the SSA or in follow-up documents listed above, or to staff's recommended revised conditions of certification included in this Addendum. In this Addendum, staff recommends revisions to the following Conditions of Certification: **BIO-17** (Desert Tortoise Compensatory Mitigation), **BIO-18** (Raven Monitoring, Management, and Control Plan), **BIO-22** (Avian Protection Plan/Monitoring Bird Impacts From Solar Technology), **BIO-26** (Streambed Impact Minimization and Compensation Measures), and **BIO-31** (Project Construction Compensation and Phasing Plan).

Scenario 5.5: Project footprint reduced to 4,614 acres (See Applicants Submittal of Reduced Project Boundary Scenarios, tn: 58411 Figures 17 and 18 [Scenario 5.5]). This scenario excludes 1,601 acres in the northern portion of the applicant's proposed project (as analyzed in the SSA). The excluded area includes the majority of the habitat supporting the highest density of desert tortoises and desert tortoise sign described above, recommended for habitat compensation at a 5:1 ratio.

Scenario 6: The project footprint would be reduced to 4,244 acres (see Applicant's Submittal of Reduced Project Boundary Scenarios, tn: 58322 Figures 11 and 12). This scenario excludes 1971 acres in the northern portion of the applicant's proposed project (as analyzed in the SSA). The excluded area includes the habitat supporting the highest density of desert tortoises and desert tortoise sign described above, and avoids the entire area recommended for habitat compensation at a 5:1 ratio.

C.2.1 SUMMARY OF CONCLUSIONS

This section summarizes the Energy Commission staff's analysis and conclusions about the impacts of the Calico Solar Project applicant-proposed reduced acreage alternative Scenarios 5.5 and 6. The summary provides a general overview of impacts of these two scenarios to each of the biological resources that are present on the project site, have the potential to be present on the site, or are present off-site and have potential to be indirectly affected by the proposed project. This summary also describes potential mitigation measures that may be employed to avoid or reduce or potentially significant project impacts.

Vegetation and Rare Plants: Impacts to vegetation under Scenarios 5.5 or 6 would be reduced from those as described in the SSA. However, either scenario would have major impacts to the biological resources of the Newberry Springs/Ludlow area of the Mojave Desert similar to the description and analysis in the SSA. Either scenario would eliminate a broad expanse of relatively undisturbed Mojave Desert habitat and would affect all plant and wildlife species on the site, including special status species. Construction of the Scenarios 5.5 or 6 would result in the permanent land use conversion of approximately 4,614 acres (Scenario 5.5) or 4,244 acres (Scenario 6) of the Mojave Desert to support operation of the solar field and appurtenant structures. Either scenario would eliminate project impacts to microphyll woodland as described in the SSA.

Although construction would not result in the complete loss of vegetation, staff considers the construction of exclusion fencing (designed to prevent desert tortoise from entering the project site), vegetation mowing, introduction of shade and added moisture from mirror washing, noise from individual SunCatcher engines, power plant maintenance activity, and risk of invasion by weedy annuals to effectively eliminate the functional use of the site for all but the most disturbance-tolerant native species. Implementation of Conditions of Certification **BIO-1** through **BIO-9** (Designated Biologist Selection, Designated Biologist Duties, Biological Monitor Qualifications, Biological Monitor Duties, Designated Biologist and Biological Monitor Authority, Worker Environmental Awareness Program, Biological Resources Mitigation Implementation and Monitoring Plan, Impact Avoidance and Minimization Measures, and Compliance Verification), **BIO-10** (Revegetation and Compensation for Impacts to Native Vegetation), and **BIO-11** (Weed Management Plan) would reduce project impacts. To address specific construction-related impacts to native vegetation communities and habitat loss, staff has incorporated measures proposed by the applicant and has proposed supplemental measures in Condition of Certification **BIO-17** (Desert Tortoise Habitat Compensation).

The Calico Solar Project site supports several special-status plant species. Nine special-status plant species, one of which is also considered sensitive by the Bureau of Land Management (BLM), but none of which are listed under the federal Endangered Species Act, were identified on or near the proposed project site. Three of these species would be directly impacted by construction of either Scenario 5.5 or 6. Two others occur north of the proposed site boundary, within the project footprint as analyzed in staff's SA/DEIS (March 30, 2010). Staff concludes that the project as analyzed in this SSA Addendum would not affect those locations. Several of the

special-status plant species reported in 2007 and 2008 were not found on the site during more thorough field surveys in 2010, and the earlier reports may have been based on misidentifications. Staff believes that impacts to small-flowered androstephium and Utah vine milkweed would be less than significant under CEQA, and that potentially significant impacts to white-margined beardtongue can be reduced below a level of significance with the implementation of staff's proposed impact avoidance and minimization measures. These measures are detailed in staff's proposed Conditions of Certification **BIO-1** through **BIO-11, BIO-12** (Special-Status Plant Impact Avoidance and Minimization)**,** and **BIO-17**.

Common Wildlife and Nesting Birds: Construction under Scenario 5.5 or Scenario 6 would be reduced from those as described in the SSA. However, either scenario would adversely affect common wildlife and nesting birds due to ground disturbance, operation, and the placement of permanent exclusion fencing around the perimeter of the site. Impacts would be similar to those described in the SSA would likely result in the exclusion of most wildlife from the Scenario 5.5 and Scenario 6 project areas. To reduce project effects on wildlife, staff has proposed Conditions of Certification **BIO-1** through **BIO-11**. Impacts to habitat loss would be compensated by the application of Condition of Certification **BIO-17** (Tortoise Habitat Compensation), and impacts to nesting birds would be avoided by the application of **BIO-19** (Pre-Construction Nest Surveys and Impact Avoidance Measures for Migratory Birds).

Construction of either scenario is expected to result in adverse effects on bird species post development and functional use of the site is expected to be low for all but the most disturbance tolerant species. Many avian species avoid developed areas within urban settings and these species would likely also avoid the SunCatchers. As described in the SSA staff cannot assess the potential for bird collisions and mortality associated with these structures but has proposed Condition of Certification **BIO-22** (Avian Protection Plan / Monitoring Bird Impacts from Solar Technology), to monitor the death and injury of birds from collisions with facility features such as reflective mirror-like surfaces and from heat, and bright light from concentrating sunlight.

Desert Tortoise: Implementation of the Scenarios 5.5 or Scenario 6 will result in adverse effects to desert tortoise (federally and State listed as a threatened species) and desert tortoise habitat. Scenario 5.5 would result in the direct loss of approximately 4,614 acres of desert tortoise habitat. Scenario 6 would result in the direct loss of approximately 4,244 acres of desert tortoise habitat.

An estimated 22 desert tortoises occur on the Scenario 5.5 project site and approximately 4 desert tortoises occur on the Scenario 6 project site. Implementation of Scenario 6 would require the translocation of approximately 5 desert tortoises compared to 13 desert tortoises for Scenario 5.5. Translocation and construction mortality associated with Scenario 5.5 could include approximately 29 tortoises and Scenario 6 could be as high as 6 tortoises. Currently staff, CDFG, BLM, and USFWS are working with the applicant to develop the Final Desert Tortoise Translocation Plan for the project. To reduce effects of Scenario 5.5 and Scenario 6 staff has proposed Conditions of Certification **BIO-1** through **BIO-9** and Conditions of Certification **BIO-15** through **BIO-17**. To reduce effects of the large scale land use conversion, staff, CDFG, and USFWS are requiring compensatory mitigation. The total acreage of desert tortoise

compensation land acquisition and protection for Scenario 5.5 and Scenario 6 would be 10,302 acres and 8,452 acres respectfully. Staff estimates total cost of habitat acquisition, protection, and enhancement at $31,079,934 for Scenario 5.5 and $25,545,484 for Scenario 6 if the applicant chooses to do the habitat compensation.

Mojave Fringe-Toed Lizard: Construction impacts under Scenario 5.5 or Scenario 6 would be reduced from those as described in the SSA. Nonetheless the large scale development would result in habitat loss and degradation for this and other sand-associated species and would result in direct impacts to occupied habitat. Staff estimates total acreage of suitable habitat, including sandy drainages and small patches of aeolian sand deposits and micro-dunes scattered throughout the southern portion of the site, as 164.7 acres. Staff believes that avoidance of habitat on-site would not prevent adverse impacts to Mojave fringe-toed lizards, due to habitat fragmentation, road kill, and increased predation (project facilities would serve as perch sites for foraging raptors, facilitating their ability to find and capture lizards and other ground-dwelling species). Staff has proposed Condition of Certification **BIO-13** to mitigate loss of suitable habitat for this species. In addition, because the BNSF will require a minimum 223-foot set back from the railroad the project will not preclude east to west movement along the north and south sides of the railroad.

Burrowing Owl: Construction impacts under Scenarios 5.5 or Scenario 6 would be reduced from those as described in the SSA; however construction of either scenario would result in direct loss of foraging habitat for the burrowing owl (a BLM sensitive species and a California Species of Special Concern). Two burrowing owls and eleven active burrows were recorded by the applicant north of the project boundary, near the toe of the Cady Mountains and numerous burrows that could support this species occur on the project site under either scenario. Staff's proposed Condition of Certification **BIO-21** (Burrowing Owl Impact Avoidance and Minimization Measures) provides minimization and avoidance measures for this species. Staff's proposed Condition of Certification **BIO-17**, the compensatory mitigation plan for desert tortoise, would likely offset burrowing owl habitat loss provided the species occurs on the potential relocation sites.

Golden Eagle: Construction impacts under Scenario 5.5 or Scenario 6 would be reduced from those as described in the SSA; however construction of either scenario would result in direct loss of foraging habitat for the Golden eagle, a BLM sensitive and California Fully Protected species (i.e., may not be taken or possessed as defined under State law). Nests occur within 3.5 miles of the project site and this species has been observed foraging over the project area. The large scale land use conversion would remove approximately 4,614 acres (Scenario 5.5) or 4,244 acres (Scenario 6) of foraging habitat in the region. This loss could substantially interfere with normal breeding, feeding, or sheltering behavior, by causing golden eagles to forage more widely and therefore spend less time at or near their nests. This effect could be considered a "take," pursuant to the federal Bald and Golden Eagle Protection Act. Staff has proposed Conditions of Certification **BIO-20** (Pre- Construction Surveys for Golden Eagles) to avoid impacts to nesting golden eagles and ensure project compliance with federal requirements. To address potential collision concerns (discussed below under

operational effects) staff has proposed Condition of Certification **BIO-22** (Avian Protection Plan / Monitoring Bird Impacts from Solar Technology).

Nelson's Bighorn Sheep: Nelson's bighorn sheep, a BLM Sensitive species, is well known from the Cady Mountains, where its population consists of at least 300 animals (SES 2009aa; DW 2010). During surveys conducted for golden eagles in the winter of 2010, the applicant detected 62 sheep within 10 miles of the proposed project. Under Scenario 5.5 and Scenario 6 the project footprints would be reduced and in some cases over one mile of additional open space will be avoided between the project and the upper bajadas of the Cady Mountains, an area generally considered potential spring foraging habitat. The project area as analyzed in this SSA does not include year-round occupied habitat (DW 2010); however the reduced project footprint associated with either scenario provides access to additional foraging habitat. Scenario 5.5 or 6 could still act as a barrier to movement for sheep using the south side of the Cady Mountains or their foothills to traverse to winter ranges in the Bristol Mountains; however these footprints avoid most of the lower bajadas. The applicant has also proposed general monitoring of sheep behavior if Nelson's bighorn sheep are seen within 200 feet of construction activities. Staff has incorporated the applicant's proposal into staff's proposed Condition of Certification **BIO-23** (Nelson's Bighorn Sheep Mitigation) and recommended additional measures to require construction monitoring and the potential cessation of construction activities should sheep be present within 500 feet of the project area.

American Badger and Kit Fox: Construction impacts under Scenario 5.5 or 6 would be reduced from those as described in the SSA. American badgers and kit fox were detected on the project site and construction of either Scenario would cause direct effects to badgers and kit fox. Because of the large size of the project, numerous badgers or kit foxes may be affected. Animals confined within the exclusionary fence would be subject to ongoing long-term impacts that may result in mortality from road kill, loss or alteration of foraging habitat, overlapping territories and barriers to dispersal. Staff believes that avoidance of badgers and kit fox alone will not mitigate the direct, indirect, and operational effects of the Calico Solar Project. Staff's proposed Condition of Certification **BIO-24** (American Badger and Desert Kit Fox Impact Avoidance and Minimization Measures) requires that prior to ground disturbance, a qualified biologist perform a preconstruction survey for badger and kit fox dens in the project area, including areas within 250 feet of all project facilities, utility corridors, and access roads. If present, the applicant will flag and avoid occupied badger and kit fox dens during ground-disturbing activities and establish a buffer to avoid loss of maternity dens. Should the applicant need to work in an area with occupied badger dens, the applicant will slowly excavate the den in accordance with Condition of Certification **BIO-24**. Staff's proposed Condition of Certification **BIO-17**, the compensatory mitigation plan for desert tortoise habitat, would also offset the loss of habitat for these species and reduce the impact from habitat loss to less-than-significant levels under CEQA.

Jurisdictional Waters: Scenario 5.5 and Scenario 6 support 155.2 acres and 129.8 acres of State Jurisdictional Waters respectively. All of these streambeds would be directly or indirectly affected by project construction and operation. Staff has proposed Condition of Certification **BIO-26** (Streambed Impact Minimization and Compensation Measures), and has provided additional recommendations and guidance consistent with typical

CDFG Streambed Alteration Agreement requirements. These include the acquisition of offsite habitat and the implementation of Best Management Practices. Scenario 5.5 and Scenario 6 avoid drainages supporting smoke tree and catclaw acacia habitats. With implementation of staff's proposed Condition of Certification **BIO-26**, impacts to State jurisdictional waters associated with the desert washes would be mitigated to less-than-significant levels under CEQA. In addition, staff has identified Condition of Certification **BIO-28** (Channel Decommissioning and Reclamation Plan), to be implemented upon project termination.

Cumulative Impacts: Staff concludes that without mitigation, the Calico Solar Project will contribute 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 these resources. These 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.

Staff concludes that, with the incorporation of recommended Conditions of Certification **BIO-1** through **BIO-31**, the proposed Calico Solar Project would be in compliance with applicable Laws, Ordinances, Regulations, and Standards (LORS).

C.2.2 INTRODUCTION

This section of the Addendum to the Supplemental Staff Assessment (SSA) provides the California Energy Commission (Energy Commission) staff analysis for two reduced acreage alternative scenarios that were submitted by the Applicant on September 13th, 2010. These scenarios were developed in response to the Commissioner's request to reduce the project footprint to minimize project effects to desert tortoise and bighorn sheep habitat. This analysis describes the biological resources that occur in the reduced acreage scenarios and provides a concise narrative of how these Scenarios reduce impacts to biological resources on the project site and in the region. This document identifies potentially significant impacts to biological resources, evaluates the adequacy of mitigation proposed by the applicant to address those impacts, and specifies mitigation measures designed to reduce impacts. It also describes compliance with applicable laws, ordinances, regulations, and standards (LORS) and includes staff's proposed conditions of certification.

Biological Resources Addendum Table 1 provides a summary of the impacts to biological resources identified for the SSA, Scenario 5.5, and Scenario 6. Other project modifications are summarized below:

Biological Resources Addendum Table 1
Comparison of SSA, Scenario 5.5, and Scenario 6

Impact Type/Project Feature	SSA	Scenario 5.5	Scenario 6
Project Footprint	6,215 acres	4,614 acres	4,244 acres
Project Water Supply	Water to be obtained from a well adjacent to the Calico Solar Project site; transported to site via a new 0.51-mile water pipeline.	Same as SSA	Same as SSA
Desert Tortoise	57 tortoises observed in project footprint. USFWS estimates of tortoise density include 189 adults, subadults, and juveniles. Translocation of approximately 107 tortoises Approximately 6,215 acres of habitat would be directly impacted within the project footprint Linkage along the northern border of the project would roughly follow 4,000-foot contour interval.	10 tortoises observed in project footprint. USFWS estimates of tortoise density include 22 adults, subadults, and juveniles Translocation of approximately 13 tortoises Approximately 4,614 acres of habitat would be directly impacted within the project footprint Linkage along the northern border increased by 1,601 acres.	4 tortoises observed in project footprint. USFWS estimates of tortoise density include 4 adults, subadults, and juveniles Translocation of approximately 5 tortoises Approximately 4,244 acres of habitat would be directly impacted within the project footprint Linkage along the northern border increased by 1,971 acres.
Mojave Fringe-Toed Lizard (MFTL)	Staff estimates that 164.7 acres of MFTL would be directly impacted within the project footprint; recommends mitigation at 3:1 ratio for breeding habitat, 1:1 for surrounding forage/cover habitat.	Same as SSA	Same as SSA

Nelson's Bighorn Sheep	Project footprint avoid impacts to year-around bighorn sheep habitat; reduce impacts to spring foraging habitat and movement	Reduces impacts to potential foraging habitat by 1,601 acres.	Reduces impacts to potential foraging habitat by 1,971 acres.
Burrowing Owl	Loss of approximately 6,215 acres of habitat	Loss of approximately 4,614 acres of habitat	Loss of approximately 4,244 acres of habitat
Golden Eagle	Loss of approximately 6,215 acres of foraging habitat	Loss of approximately 4,614 acres of foraging habitat	Loss of approximately 4,244 acres of foraging habitat
Special-Status Plants	Indirect impacts to white-margined beardtongue locations to be protected and designated Environmentally Sensitive Areas; no impacts to Emory's crucifixion thorn	Same as SSA	Same as SSA

Laws, Ordinances, Regulations, and Standards (LORS)

The applicant will comply with the same laws, ordinances, regulations, and standards (LORS) for Scenario 5.5 and Scenario 6 that were identified in the SSA. Scenarios 5.5 and 6 as addressed in this addendum would not affect staff's conclusion that either scenario, with staff's recommended conditions of certification would comply with applicable LORS.

Desert Renewable Energy Conservation Plan – Interim Planning

The Desert Renewable Energy Conservation Plan (DRECP) remains an ongoing process that will provide guidance to developers for siting and mitigating large scale renewable energy projects. No substantive changes to this effort have occurred since the publication of the SSA.

REAT Account

The California Renewable Energy Action Team (REAT) account would remain the same for Scenario 5.5 and Scenario 6. Staff's proposed Conditions of Certification **BIO-12, BIO-13,** and **BIO-17** would provide the project owner with the option of implementing certain mitigation requirements through use of the REAT Account.

Senate Bill X8 34

The discussion of Senate Bill X8 34 (SBX8 34) is addressed in the SSA. Condition of Certification **BIO-30** is included to reflect the SBX8 34 in-lieu fee option.

C.2.3 METHODOLOGY AND THRESHOLDS FOR DETERMINING ENVIRONMENTAL CONSEQUENCES

The significance criteria used for the purposes of analyzing Scenario 5.5 and Scenario 6 are the same that were identified and utilized to make significance conclusions for the SSA. These include the following significance criteria:

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the BLM, CDFG, or USFWS.
- Have an adverse effect, either directly or through habitat modifications, on any species listed as endangered, threatened, or proposed for listing or critical habitat for these species.
- Have a substantial adverse effect, either directly or through habitat modifications on any species identified as a candidate for listing, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG, BLM, or USFWS.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinances.
- Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Communities Conservation Plan (NCCP), or other approved local, regional, Federal, or State HCP.

C.2.4 PROPOSED SCENARIOS 5.5 AND 6

C.2.4.1 SETTING AND EXISTING CONDITIONS

Regional Setting

The regional setting for Scenario 5.5 and Scenario 6 is described in the SSA.

Project Area

The Scenario 5.5 and Scenario 6 project areas are a subset of the proposed project and are described in the SSA.

Proposed Scenarios 5.5 and 6

Scenario 5.5 consists of a 4,614-acre footprint and Scenario 6 consists of a 4,244-acre footprint located entirely within the footprint analyzed in the SSA. See Applicants Submittal of Reduced Project Boundary Scenarios (tn: 58411, Figures 11 and 12

[Scenario 6], and Figures 17 and 18 [Scenario 5.5]) for the revised site layout and boundary.

Water Supply and Discharge

The water supply and discharge are addressed in the SSA. See also (**Soil & Water Table 5**).

Drainage, Erosion, and Sediment Control

Scenario 5.5 and Scenario 6 have not proposed the construction of debris and retention basins. However, ongoing discussions regarding the need for these structures near the BNSF railroad remain underway. For a detailed description of the proposed drainage layout please see the **Soil and Water Resources** section in this document.

Evaporation Ponds

A discussion of evaporation ponds is addressed in the SSA.

Construction Schedule, Workforce, Access, and Laydown Areas

The applicant proposes to construct the project in phases described in text and maps provided on September 10, 2010 (tn: 58411, Applicant's submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information, Figures 11 and 12 [Scenario 6] or Figures 17 and 18 [Scenario 5.5]). Under Scenarios 5.5 and 6, construction activity and any other ground disturbing activity including access routes and laydown area, would be authorized only within the boundaries of Phase 1a, Phase 1b, or Phase 2 as specifically authorized according to staff's recommended Condition of Certification **BIO-31** (Project Construction and Compensation Phasing Plan).

No proposed laydown areas are included in Phase 1a. Instead, the Phase 1 laydown areas as described in the SSA would be included within Phase 1b. No other changes to the construction schedule, workforce, access, and laydown areas as described in the SSA are proposed under Scenarios 5.5 or 6.

Operations/Maintenance Activities

The operation and maintenance of the proposed project are addressed in the SSA.

Vegetation and Wildlife

Plant Communities

The project site as analyzed in this Addendum would impact two vegetation communities, described in the SSA: desert saltbush scrub and Mojave creosote bush scrub. Both Scenarios 5.5 and 6 as analyzed in this Addendum would impact 242 acres of desert saltbush scrub as mapped by the applicant and described in the SSA. The remainder of either scenario would impact Mojave creosote bush scrub. Staff estimates that Scenario 5.5 would impact 4,372 acres of Mojave creosote bush scrub, and that Scenario 6 would impact 4,002 acres of Mojave creosote bush scrub.

As described in the SSA, areas mapped by the applicant as creosote bush scrub in the southern part of the project area, generally from about 0.25 mile north of the BNSF

railroad tracks and southward to the southern project area boundary, include scattered smoke trees. These areas are characterized by sandy soils, in deep sandy washes, open sandfields, and active windblown sandfields. These areas are within the project area boundaries under Scenarios 5.5 and 6. Sand transport and sandfield vegetation are as described in the SSA for both scenarios addressed in this Addendum.

Jurisdictional Waters

Scenario 5.5 and Scenario 6 are a subset of the lands described for the SSA. Both of these Scenarios support small washes and ephemeral streams that meet the criteria as Waters of the State. Scenario 5.5 and Scenario 6 support 155.2 acres and 129.8 acres of State Jurisdictional Waters respectively. The US Army Corps of Engineers has determined that the site does not support waters meeting the definition of Waters of the United States (SES 2009j). Wetlands are not present in the project footprint.

Wildlife

Scenario 5.5 and Scenario 6 support the same species of wildlife that were described in the SSA.

Special-Status Species

Scenario 5.5 and Scenario 6 support the same sensitive plant and wildlife species that were described in the SSA. Please see **Biological Resources Table 3** of the SSA for a list of the special-status species that are known to occur or could potentially occur in the project area and vicinity.

Special-Status Plants

The SSA describes special status plant species that occur on the Calico project site. These include small-flowered androstephium, foxtail cactus, Utah vine milkweed, and white-margined beard-tongue. Most or all locations of these species are within the project area as described in Scenarios 5.5 and 6. In addition to these five species, Appendix D of the Biological Resources Technical Report (SES 2009aa) indicates that four additional special-status plants occur on the project site as described in the SA/DEIS: winged cryptantha, crowned muilla, Coves' cassia, and small-flowered sand verbena. Other special status plants addressed in the SSA that have not been recorded on the 6,215-acre proposed project site including an undescribed lupine and Lane Mountain milk-vetch are not addressed in this addendum.

Biological Resources Figure 2 of the SSA identifies the locations of rare plants confirmed during the 2010 botanical surveys conducted by the applicant (TS 2010i).

Small-Flowered Androstephium (*Androstephium breviflorum*)

Small-flowered androstephium was reported more than 1,500 locations on the proposed project site as analyzed in the SSA and described as "ubiquitous" throughout the southern part of the project site (TS 2010i). All of these locations are within the development areas as proposed under Scenarios 5.5 or 6. It is on CNPS List 2.2. Its natural history and conservation status are described in the SSA.

Foxtail Cactus (*Coryphantha alversonii = Escobaria vivipara var. alversonii*)

Foxtail cactus was reported at one unmapped location on the Calico Solar Project site during the 2008 surveys for the project boundaries as described in the SA/DEIS. It was not relocated on-site during the follow-up surveys (TS 2010i). It is on CNPS List 4.3. Suitable desert shrubland habitat occurs throughout site.

Winged Cryptantha (*Cryptantha holoptera*)

Winged cryptantha is on CNPS List 4.3. It was reported in the applicant's list of plant species identified during 2008 surveys for the project as analyzed in the SA/DEIS (SES 2009aa – Appendix D), though its locations were not mapped or quantified in the applicant's Biological Resources Technical Report (SES 2009aa). It was not relocated on-site during the follow-up surveys (TS 2010i). Suitable desert shrubland habitat occurs throughout much of the project site. Its natural history and conservation status are described in the SSA.

Utah Vine Milkweed (*Cynanchum utahense*)

Utah vine milkweed is on CNPS List 4.2. It in present on the Calico Solar Project site, as the applicant reported one location onsite near I-40 (SES 2009aa). It was also reported in 2010 (TS 2010i; see also **Biological Resources Figure 2**) within the areas addressed here as Scenarios 5.5 and 6.. Additional suitable habitat is found in washes throughout the project area. Its natural history and conservation status are described in the SSA.

Crowned Muilla (*Muilla coronata*)

Crowned muilla is on CNPS List 4.2. It was reported in the applicant's list of plant species identified during 2008 surveys for the project as analyzed in the SA/DEIS (SES 2009aa – Appendix D), though it was not mapped or quantified in the applicant's Biological Resources Technical Report and was not relocated during 2010 field surveys (TS 2010i). Suitable desert shrubland habitat occurs throughout much of the project site. Its natural history and conservation status are described in the SSA.

White-Margined Beardtongue (*Penstemon albomarginatus*)

White-margined beardtongue is on CNPS List 1B. Its natural history and conservation status are described in the SSA. It is present at several locations on the Calico Solar Project site (TS 2010i; see also **Biological Resources Figure 2**). All of these locations are within the development areas as proposed under Scenarios 5.5 or 6. It also is known from numerous occurrences off-site to the southeast on lands managed by BLM as the Pisgah Area of Critical Environmental Concern (SES 2009aa; CDFG 2010a).

Coves' Cassia (*Senna covesii =Cassia covesii*)

Coves' cassia is on CNPS List 2.2. Its natural history and conservation status are described in the SSA. It was reported in the applicant's list of plant species identified during 2008 surveys for the project as analyzed in the SA/DEIS (SES 2009aa – Appendix D), though the locations were not mapped or quantified. It was not relocated on the site during 2010 field surveys (TS 2010i), and the original report was apparently due to misidentification. Staff concludes that Coves' cassia is unlikely to occur within the boundaries of Scenarios 5.5 or 6.

Small-Flowered Sand-Verbena (*Tripterocalyx micranthus*)

Small-flowered sand-verbena is on CNPS List 2.3. Its natural history and conservation status are described in the SSA. It was reported in the applicant's list of plant species identified during 2008 surveys for the project as analyzed in the SA/DEIS (SES 2009aa – Appendix D), though it was not mapped or quantified. It was not relocated on the site during 2010 field surveys (TS 2010i), and the original report was apparently due to misidentification. Staff concludes that small-flowered sand verbena is unlikely to occur within the boundaries of Scenarios 5.5 or 6.

Reptiles

Desert Tortoise (*Gopherus agassizii*)

The information relevant to desert tortoise ecology presented in the SSA is the same for Scenario 5.5 and Scenario 6. Scenario 5.5 consists of approximately 4,614 acres of desert tortoise habitat compared to 6,215 identified in the SSA. Scenario 6 consists of approximately 4,244 acres of desert tortoise habitat compared to 6,215 identified in the SSA.

Six adult and 4 juvenile tortoises were detected during 2010 field surveys within the Scenario 5.5 project footprint. Using the formulas described in the SSA this suggests the site supports an estimated 11 adult and sub-adult desert tortoise, between 5 and 11 juvenile desert tortoises, and approximately 56 eggs. Therefore Scenario 5.5 could support a total population of approximately 22 adults, subadults, and juvenile desert tortoise, and approximately 56 eggs. In addition to the desert tortoises identified in the Scenario 5.5 area 1 adult and 1 juvenile desert tortoise were detected in the small exclusion area west of the southern Not A Part (NAP) area. **Biological Resource Addendum Table 6a** contains a concise description of the expected number of tortoises affected by Scenario 5.5.

One adult and 3 juvenile desert tortoises were detected during 2010 field surveys within the Scenario 6 project footprint. Using the formulas described in the SSA this suggests the site supports an estimated 2 adult and sub-adult desert tortoise, between 1 and 2 juvenile desert tortoises, and approximately 9 eggs. Therefore Scenario 6 could support a total population of approximately 4 adults, subadults, and juvenile desert tortoise, and approximately 9 eggs. As described above for Scenario 5.5, 1 adult and 1 juvenile desert tortoise occur in the small exclusion area west of the southern NAP and would require translocation during implementation of Scenario 6. **Biological Resource Addendum Table 6b** contains a concise description of the expected number of tortoises that could be affected by Scenario 6. Please see **Biological Resources Figure 3** of the SSA for the locations of desert tortoises detected during the 2010 surveys.

Critical Habitat

The information presented in the SSA is the same for Scenario 5.5 and Scenario 6.

Banded Gila Monster *(Heloderma suspectum cinctum)*

The information presented in the SSA is the same for Scenario 5.5 and Scenario 6.

Mojave Fringe-Toed Lizard *(Uma scoparia)*

The information presented in the SSA is the same for Scenario 5.5 and Scenario 6. Please see **Biological Resources Figure 4** of the SSA which delineates potential habitat on site and identifies recorded observations of Mojave fringe-toed lizards on the project site.

Birds

Western Burrowing Owl *(Athene cunicularia)*

The information presented in the SSA is the same for Scenario 5.5 and Scenario 6.

Swainson's Hawk *(Buteo swainsoni)*

The information presented in the SSA is the same for Scenario 5.5 and Scenario 6.

Prairie Falcon *(Falco mexicanus)*

The information presented in the SSA is the same for Scenario 5.5 and Scenario 6.

Golden Eagle *(Aquila chrysaetos)*

The information presented in the SSA is the same for Scenario 5.5 and Scenario 6.

Loggerhead Shrike *(Lanius ludovicianus)*

The information presented in the SSA is the same for Scenario 5.5 and Scenario 6.

Bendire's Thrasher (*Toxostoma bendirei)*

The information presented in the SSA is the same for Scenario 5.5 and Scenario 6.

Le Conte's Thrasher (*Toxostoma lecontei*)

The information presented in the SSA is the same for Scenario 5.5 and Scenario 6.

Mammals

Nelson's Bighorn Sheep *(Ovis canadensis nelsoni)*

The information presented in the SSA is the same for Scenario 5.5 and Scenario 6. Please see **Biological Resources Figure 6** of the SSA which shows the locations of bighorn sheep observed during 2010 helicopter surveys.

Pallid Bat *(Antrozous pallidus)*

The information presented in the SSA is the same for Scenario 5.5 and Scenario 6.

Townsend's Big-Eared Bat *(Corynorhinus townsendii)*

The information presented in the SSA is the same for Scenario 5.5 and Scenario 6.

American Badger *(Taxidea taxus)*

The information presented in the SSA is the same for Scenario 5.5 and Scenario 6.

Desert Kit Fox *(Vulpes macrotis arsipus)*

The information presented in the SSA is the same for Scenario 5.5 and Scenario 6.

C.2.4.2 ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

Direct and Indirect Impacts and Mitigation

The CEQA Guidelines including definitions for direct and indirect impacts and the thresholds for significance for Scenario 5.5 and Scenario 6 are the same as described in the SSA.

Biological Resources Addendum Table 4 summarizes the impacts to biological resources that would result from Scenario 5.5 and Scenario 6 construction and operation and provides conditions of certification to mitigate these impacts. Staff's recommended conditions of certification are discussed in more detail later in this analysis.

Biological Resources Addendum Table 4
Summary of Impacts/Mitigation

Biological Resource	Impact/Mitigation
Mojave Desert Plant Communities and Wildlife Habitat	**Scenario 5.5 Impacts:** Permanent loss and fragmentation of a total of approximately 4,614 acres of native vegetation; potential direct impacts to terrestrial wildlife by heavy equipment and grading; increased risk of road kill; increased disturbance/dust to nearby vegetation and wildlife; spread of non-native invasive weeds. **Mitigation:** Avoidance and minimization measures (**BIO-1** through **BIO-9**); restoration/compensation (**BIO-10**); weed management (**BIO-11**); desert tortoise compensatory mitigation (**BIO-17**). **Scenario 6 Impacts:** Same as described for Scenario 5.5 however reduces impacts to potential foraging habitat by 370 acres. **Mitigation:** Same as described for Scenario 5.5.
Special-Status Plants	**Scenario 5.5 Impacts:** Potential loss and fragmentation of habitat, potential loss of individuals or populations. **Mitigation:** Avoidance and minimization measures (**BIO-1** through **BIO-9**); restoration/compensation (**BIO-10**); weed management (**BIO-11**); surveys for rare plants prior to ground disturbance and avoidance of rare plants (**BIO-12**); desert tortoise compensatory mitigation (**BIO-17**). **Scenario 6 Impacts:** Same as described for Scenario 5.5 however reduces impacts to 370 acres of potential habitat. **Mitigation:** Same as described for Scenario 5.5.

Biological Resource	Impact/Mitigation
Common Wildlife	**Scenario 5.5 Impacts:** Potential mortality or disturbance during construction and operation, loss or fragmentation of habitat, displacement, disruption of movement. **Mitigation:** Avoidance and minimization measures (**BIO-1** through **BIO-9**); desert tortoise compensatory mitigation (**BIO-17**). **Scenario 6 Impacts:** Same as described for Scenario 5.5 however lower in magnitude due to reduction in project size. **Mitigation:** Same as described for Scenario 5.5.
Horses and Burros	**Scenario 5.5 Impacts:** Loss or fragmentation of habitat, displacement, disruption of movement if these species occur in project area. **Mitigation:** Avoidance and minimization measures (**BIO-1** through **BIO-9**). **Scenario 6 Impacts:** Same as described for Scenario 5.5 however lower in magnitude due to reduction in project size. **Mitigation:** Same as described for Scenario 5.5.
Waters of the State	**Scenario 5.5 Impacts:** Permanent impacts to 155.2 acres of waters of the State from the modification of attenuation of flows, sediment disruption and the installation of permanent project components. **Mitigation:** Avoidance and minimization measures (**BIO-1** through **BIO-9**); acquisition of offsite State jurisdictional waters, the implementation of Best Management Practices to protect drainages, and nonnative vegetation removal (**BIO-26**); removal of engineered diversion channels upon project closure (**BIO-28**). **Scenario 6 Impacts:** Permanent impacts to 129.8 acres of waters of the State. **Mitigation:** Same as described for Scenario 5.5.
Special-Status Wildlife	
Mojave Fringe-Toed Lizard	**Scenario 5.5 Impacts:** Potential mortality and disturbance, loss of habitat, and habitat fragmentation, disruption of movement corridors. **Mitigation:** Avoidance and minimization measures (**BIO-1** through **BIO-9**); specific Mojave fringe-toed lizard avoidance and minimization measures (**BIO-13**). **Scenario 6 Impacts:** Same as described for Scenario 5.5. **Mitigation:** Same as described for Scenario 5.5.
Gila Monster	**Scenario 5.5 Impact:** Potential mortality and disturbance, loss of habitat, and habitat fragmentation, if present. **Mitigation:** General avoidance and minimization measures (**BIO-1** through **BIO-9**); specific Gila monster avoidance and minimization measures (**BIO-14**). **Scenario 6 Impacts:** Same as described for Scenario 5.5 however reduces impacts to 370 acres of potential habitat. **Mitigation:** Same as described for Scenario 5.5.

Biological Resource	Impact/Mitigation
Desert Tortoise	**Scenario 5.5 Impacts:** Habitat loss and fragmentation to 4,614 acres, disruption of movement corridors, potential take of individuals during operation and construction; increased risk of predation from ravens and other predators; increased road kill hazard from construction and operations traffic. **Mitigation:** Avoidance and minimization measures (**BIO-1** through **BIO-9**); clearance surveys and exclusion fencing (**BIO-15**); Relocation/Translocation Plan (**BIO-16**); off-site habitat acquisition of 23,417 acres (**BIO-17**); Raven Monitoring, Management, And Control Plan (**BIO-18**). **Scenario 6 Impacts:** Same as described for Scenario 5.5 however reduces impacts to potential foraging habitat by 370 acres. Avoids majority of desert tortoise on site, reduces the number of desert tortoise translocated to off-site areas. **Mitigation:** Same as described for Scenario 5.5.
Swainson's Hawk	**Scenario 5.5 Impact:** Potential loss of foraging habitat. **Mitigation:** Desert tortoise compensatory mitigation (**BIO-17**). **Scenario 6 Impacts:** Same as described for Scenario 5.5 however reduces impacts to potential foraging habitat by 370 acres. **Mitigation**: Same as described for Scenario 5.5.
Golden Eagle	**Scenario 5.5 Impacts:** Loss of foraging habitat; disruption of foraging activities; degradation and alteration of habitat adjacent to the project. **Mitigation:** General avoidance and minimization measures (**BIO-1** through **BIO-9**); preconstruction surveys for golden eagles and establishment of no-disturbance buffer zones around active nests (**BIO-20);** and the implementation of an avian protection plan / monitoring bird impacts from solar technology **(Bio-22)**. **Scenario 6 Impacts:** Same as described for Scenario 5.5 however reduces impacts to potential foraging habitat by 370 acres. Increases distance between potential nest sites in Cady Mountains. **Mitigation**: Same as described for Scenario 5.5.
Burrowing Owl	**Impacts:** Potential loss of nest, eggs, or young; loss of breeding and foraging habitat; disturbance of nesting and foraging activities for populations on and near the project site and/or exposure to toxins in the evaporation ponds **Mitigation:** Implement burrowing owl impact avoidance and mitigation measures; pre-construction surveys; detection and avoidance of active burrows and, if necessary, the acquisition of mitigation lands; and the creation of artificial burrows for displaced individuals (**BIO-21**). **Scenario 6 Impacts:** Same as described for Scenario 5.5 however reduces impacts to potential foraging habitat by 370 acres. **Mitigation**: Same as described for Scenario 5.5.

Biological Resource	Impact/Mitigation
Other Migratory/Special-Status Birds • Loggerhead Shrike • Le Conte's Thrasher • Bendire's Thrasher	**Scenario 5.5 Impacts:** Disturbance of nesting activities; potential loss of nest, eggs, or young; loss of breeding and foraging habitat; potential mortality due to collisions with solar infrastructure and/or exposure to toxins in the evaporation ponds. **Mitigation:** Off-site habitat acquisition and enhancement (**BIO-17**); conduct pre-construction nesting surveys, implement avoidance measures (**BIO-19**); avian protection plan / monitoring bird impacts from solar technology (**BIO-22**); Evaporation Pond Design, Monitoring, and Management Plan (**BIO-27**). **Scenario 6 Impacts:** Same as described for Scenario 5.5 however reduces impacts to potential foraging habitat by 370 acres. Minimizes disturbance to microphyll woodlands. **Mitigation**: Same as described for Scenario 5.5.
Bird Collisions and Electrocution	**Scenario 5.5 Impacts:** Avian species, including special-status species, could be subject to mortality due to collisions and/or electrocution on project transmission lines and collisions with SunCatchers. **Mitigation:** Transmission lines and all electrical components shall be designed, installed, and maintained in accordance with the Avian Power Line Interaction Committee's (APLIC's) *Suggested Practices for Avian Protection on Power Lines* (APLIC 2006) and *Mitigating Bird Collisions with Power Lines* (APLIC 2004) (**BIO-8**); avian protection plan / monitoring bird impacts from solar technology (**BIO-22**). **Scenario 6 Impacts:** Same as described for Scenario 5.5 however lower in magnitude due to reduction in project size. Increases distance between potential nest sites in Cady Mountains. **Mitigation**: Same as described for Scenario 5.5.
Nelson's Bighorn Sheep	**Impact:** Disruption of intermountain movement, loss of foraging habitat; disturbance from construction activities, noise, and lighting; interference with movement and behavioral modifications due to human presence. **Mitigation:** Avoidance and minimization measures (**BIO-1** through **BIO-9**); work stoppage if bighorn sheep detected within 500 feet of project activities (**BIO-23**). **Scenario 6 Impacts:** Same as described for Scenario 5.5 however reduces impacts to potential foraging habitat by 370 acres. Increases distance between solar arrays and foothills of Cady Mountains. **Mitigation**: Same as described for Scenario 5.5.
American Badger and Kit Fox	**Scenario 5.5 Impacts:** Potential loss and fragmentation of habitat, loss of foraging grounds, crushing or entombing of animals during construction. **Mitigation:** Conduct pre-construction surveys and implement avoidance measures (**BIO-24**). **Scenario 6 Impacts:** Same as described for Scenario 5.5 however reduces impacts to potential foraging habitat by 370 acres. **Mitigation**: Same as described for Scenario 5.5.

Biological Resource	Impact/Mitigation
Special-Status Bats	**Scenario 5.5 Impacts:** Potential loss and fragmentation of habitat, potential mortality and disturbance of animals during construction and operation. Bats may also be subject to collision with SunCatchers and/or exposure to toxins in the evaporation ponds **Mitigation:** Avoidance and minimization measures, including pre-construction surveys, avoidance of maternity colonies, provision of substitute roosting habitat, and exclusion of bats prior to demolition of roosts (**BIO-25**). **Scenario 6 Impacts:** Same as described for Scenario 5.5 however reduces impacts to potential foraging habitat by 370 acres
Wildlife Movement Corridors	**Scenario 5.5 Impacts:** Interference with wildlife movement across project site due to permanent exclusion fencing. **Mitigation:** Avoidance and minimization measures (**BIO-1** through **BIO-9**). **Scenario 6 Impacts:** Same as described for Scenario 5.5 however increases width of linkage area by 370 acres. Increases distance between solar arrays and foothills of Cady Mountains. **Mitigation**: Same as described for Scenario 5.5.

Four of staff's recommended Conditions of Certification would require the project owner to acquire compensation lands to mitigate the project's impacts to biological resources. The most significant of these is **BIO-17**, Desert Tortoise Compensatory Mitigation. The others are Conditions of Certification **BIO-12, BIO-13**, and **BIO-26**. **BIO-12** (Special-Status Plant Impact Avoidance and Minimization) provides the option of mitigating impacts to rare plants that may be discovered on the site during late-season botanical surveys. **BIO-13** (Mojave Fringe-Toed Lizard Mitigation) would require compensation for project impacts to this animal. **BIO-26** (Streambed Impact Minimization and Compensation Measures) would require compensation for jurisdictional streambed acreage impacted by the project. In each of these conditions, staff recommends a financial security to ensure adequate funding to acquire and manage the compensation lands. Staff recommends that this security should be equal to staff's estimated costs for habitat compensation and management. Staff recognizes that some potential compensation lands may support more than one of these resources, and staff recommends that, wherever applicable, the Project owner should seek compensation lands meeting selection criteria for more than one of these resources, as described in these conditions of certification, below. However, pending acquisition of compensation lands, staff recommends separate securities for each resource except burrowing owl security described in Condition of Certification **BIO-22**.

Staff has calculated the acreage and estimated costs for desert tortoise compensation lands under Scenarios 5.5 and 6, as described in Condition of Certification **BIO-17**. Staff provides estimates of acreage and costs for Mojave fringe-toed lizard compensation in **BIO-13**. Any potential compensation acreage for rare plants, pursuant to **BIO-12**, would be determined upon completion of late-season field surveys and cannot be estimated at this time. Staff anticipates that all compensation lands for state-jurisdictional streambeds as required under **BIO-26** would be "nested" within desert tortoise compensation lands, avoiding necessity for additional compensation lands. However, as

described in **BIO-26**, further compensation lands may be required dependent upon the extent of state jurisdictional waters on the desert tortoise compensation lands. Biological Resources Addendum Table 5, below, presents the basis for staff's compensatory cost estimates in each of these recommended conditions of certification.

Biological Resources Addendum Table 5
Habitat Compensation Cost Estimates: Conditions of Certification BIO-17, BIO-12, BIO-13, and BIO-26[1]

	Task	**Cost**
1.	Land Acquisition	$1,000 per acre[2]
2.	Level 1 Environmental Site Assessment	$3,000 per parcel[3]
3.	Appraisal	$5,000 per parcel
4.	Initial site work - clean-up, enhancement , restoration	$250 per acre[4]
5.	Closing and Escrow Costs – 2 transactions at $2,500 each; landowner to 3rd party and 3rd party to agency	$5,000 per parcel
6.	Biological survey for determining mitigation value of land (habitat based with species specific augmentation)	$5,000 per parcel
7.	3rd party administrative costs - includes staff time to work with agencies and landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; review of acquisition documents; assembling acres to acquire….	10% of land acquisition cost (#1)
8.	Agency costs to review and determine accepting land donation - includes 2 physical inspections; review and approval of the Level 1 ESA assessment; review of all title documents; drafting deed and deed restrictions; issue escrow instructions; mapping the parcels….	15% of land acquisition costs (#1) × 1.17 (17% of the 15% for overhead)
	SUBTOTAL A *- Acquisition & Initial Site Work*	
9.	Long-term Management and Maintenance (LTMM) Fund - includes land management; enforcement and defense of easement or title [short and long term]; monitoring….	$1,450 per acre[5]
	SUBTOTAL B *– includes LTMM*	
	NFWF Fees	
10.	Establish the project specific account	$12,000.00
11.	Pre-proposal Modified RFP or RFP processing[6]	$30,000.00
12.	NFWF management fee for acquisition & initial site work	3% of SUBTOTAL
13.	NFWF Management fee for LTMM Fund	1% of LTMM Fund
	TOTAL *deposit in REAT-NFWF Project Specific Account*	

1. Estimates prepared in consultation with CDFG, USFWS, and BLM. All costs are best estimates as of summer 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
2. Generalized estimate taking into consideration a likely jump in land costs due to demand, and an 18-24 month window to acquire the land after agency decisions are made. If the agencies, developer, or 3rd party has better, credible information on land costs in the specific area where project-specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.

3. For the purposes of determining costs, a parcel is 40 acres (based on input from CDD).
4. Based on information from CDFG.
5. Estimate for purposes of calculating general costs. The actual long term management and maintenance costs will be determined using a Property Assessment Report (PAR) tailored to the specific acquisition.
6. If determined necessary by the REAT agencies if multiple 3rd parties have expressed interest; for transparency and objective selection of 3rd party to carry out acquisition.

Overview of Impacts to Vegetation and Wildlife

Construction of the Calico Solar Project would result in the permanent land use conversion of native vegetation communities and the loss of special-status plant and animal species. Permanent loss as defined by staff involves impacts that would not recover within 5 years (above). The Calico Solar Project would have long-term impacts associated with project features (e.g., SunCatchers, expansion of the Pisgah Substation, new transmission line towers, new access roads, altered drainage features, evaporation ponds, and required maintenance activities that would routinely disturb wildlife and vegetation) that would continue throughout the life of the project, as well as habitat degradation that would persist for decades following project closure.

Vegetation Impacts

Construction of the Calico Solar Project Scenarios 5.5 or 6 and their associated facilities would result in the permanent loss of most native vegetation and associated wildlife habitat values throughout the development area, as described in the SSA. Adverse impacts to native vegetation would include the effects of mowing, dust, and invasive weeds as described in the SSA. These impacts would be proportionally less for Scenarios 5.5 or 6 than for the proposed project as analyzed in the SSA. However, staff considers the direct and indirect construction impacts to vegetation to be significant under CEQA for Scenarios 5.5 or 6. This impact would be reduced to less-than-significant levels with implementation of impact avoidance and minimization measures described in staff's proposed Conditions of Certification **BIO-1** through **BIO-11** and **BIO-17** as described in the SSA and updated subsequently (see Preface, above).

Impacts to Special-Status Plants

Project construction and operation have the potential to cause a variety of direct or indirect effects to special-status plants within or near the project boundary, as described in the SSA. With few exceptions, the documented locations of special-status plants within the project area also are within the boundaries of Scenarios 5.5 or 6. Thus, the analysis of project impacts to special-status plants as presented in the SSA would not change if Scenario 5.5 or 6 were implemented.

Staff have concluded that, absent mitigation, proposed construction of the Calico Solar Project as analyzed in this SSA would directly or indirectly impact at least three special-status plant species (white-margined beardtongue, small-flowered androstephium, and Utah vine milkweed; see **Biological Resources Table 3**), and that impacts to one of these —white-margined beardtongue— would be considered significant under CEQA guidelines for reasons explained below. Several other special-status plants were reported on-site during 2008 field surveys, including Coves' cassia and small-flowered sand verbena. Staff now believes that those reports may have been mistaken, and occurrence likelihood is considered low. Staff considers project impacts to the other five

special-status species occurring or potentially occurring on-site as many as three of these —small-flowered androstephium, foxtail cactus, Utah vine milkweed, winged cryptantha, and crowned muilla — to be less than significant, as explained below. Four of these five species are ranked as "watch list" by the California Native Plant Society (CNPS) and CDFG's California Natural Diversity Data Base and as such are generally considered more regionally common than plants on higher priority lists. The fifth species, small-flowered androstephium, discussed further below, is known from numerous occurrences in the area, including protected occurrences within the adjacent BLM Pisgah Crater Area of Critical Environmental Concern (ACEC).

Six additional CNPS List 1B and six additional CNPS List 2 plants have some potential to occur on-site, but have not been detected during field surveys to date. In general, these plants are spring-blooming species and would likely have been detected. However, due to limitations of field surveys and unpredictable variations in annual flowering, some species may have gone undetected during field work. Further, some special-status plants flower exclusively or primarily in summer or early fall, and would not have been detected during field surveys conducted to date. If any of these species occur on the site, it could be adversely affected by project development. These species are listed above in **Biological Resources Table 3** (Special-Status Species, Their Status, and Potential Occurrence at the Calico Solar Project Site).

Energy Commission staff's conclusion of CEQA significance was based on an analysis of impacts to these species in light of the variables below. These are described in further detail in the SSA.

- Proportion of occurrences that may be lost and/or indirectly affected by the project relative to the documented occurrences and distribution of these species in California;
- Extent of occurrence on-site (i.e., number of documented locations);
- Habitat quality;
- Cumulative effects and indirect threats to remaining occurrences; and
- Peripheral population status.

CEQA Significance and CNPS Status

White-margined beardtongue, Coves' cassia, and small-flowered sand verbena are not listed under the California or federal Endangered Species Acts. However, under significance criteria adopted by staff in the Supplemental Staff Assessment (see SSA Section C.2.3 and additional detail in text of the SSA), project impacts to these species, if not mitigated, will be considered significant pursuant to CEQA.

Significance Conclusions

Listed threatened or endangered species with potential to occur in project area:

Lane Mountain milk-vetch is the only listed threatened or endangered plant species occurring in the region. Staff concludes that Lane Mountain milk-vetch is unlikely to occur on or adjacent to the project site because of its distance from known occurrences, no plants were found during field survey (TS 2010i), and unsuitable bajada habitat

throughout most of the project site. Staff concludes that the project would not affect Lane Mountain milk vetch.

CNPS List 1B / BLM Sensitive Taxa

One CNPS List 1B species (white-margined beardtongue) was documented on the project site, and five others could occur there, though their probabilities of occurrence are moderate to low (see SSA). Based on analysis of its rarity, range and distribution, staff concludes that white-margined beardtongue meets criteria for consideration as rare, threatened or endangered under CEQA Section 15380. Staff concludes that, absent mitigation, adverse impacts to white-margined beardtongue or other CNPS List 1B species would be significant under CEQA. Staff concludes that these impacts can be mitigated below a level of significance by implementing staff's proposed Condition of Certification **BIO-12**, including measures to provide buffer areas around white-margined beardtongue locations; monitor and manage direct and indirect project impacts and plant persistence within these areas; and monitor and manage indirect project impacts to occurrences off-site to the east, in the BLM Pisgah Crater ACEC. By incorporating these measures, staff concludes that adverse impacts to white-margined beardtongue would be reduced to less than significant by minimizing indirect impacts to the plants protected within buffer areas; and by managing potential on-site and off-site impacts, including alterations to sand movement and plant demography.

CNPS List 2 Taxa

One CNPS List 2 taxon (small-flowered androstephium) is known from the project site and two others have been reported but unconfirmed there (SES 2009aa). These may have been misidentified in the original survey reports. As described in the SSA, staff concludes that adverse impacts to small-flowered androstephium would be less-than-significant per CEQA due to numerous additional occurrences documented elsewhere in California in recent years, including new occurrences documented by the applicant on public lands to the west and east, including many in the Pisgah ACEC. Staff concludes that, absent mitigation, adverse impacts to other CNPS List 2 species that could occur on the site would be significant under CEQA, and that these impacts can be mitigated below a level of significance by implementing Condition of Certification **BIO-12**.

CNPS List 4 Taxa

CNPS List 4 species are plants of limited distribution or infrequent throughout a broader area of California, and their vulnerability or susceptibility to threat appears low at this time (CNPS 2010). Based on known geographic ranges and abundance, absence of any reported unusual morphology among local populations, and local occurrence in typical habitat, staff concludes that project impacts to CNPS List 4 species occurring on the proposed project site and discussed above and in the SSA DEIS do not reach the level of significance under the Energy Commission's adopted significance criteria.

Impact Evaluation and Mitigation Strategy

The SSA provides staff's evaluation of several potential strategies to mitigate impacts to special-status plants that were considered but rejected. These were:

1. Avoiding or minimizing on-site impacts.

2. Acquisition and protection of special-status plant populations on private lands.
3. Protection and enhancement of populations on public lands.
4. Seed collection, translocation or transplantation of special-status plants.

Staff concludes that its proposed Condition of Certification **BIO-12** would reduce the project's direct, indirect, and cumulative impacts below a level of significance by avoiding and protecting all white-margined beardtongue locations on-site, locating and identifying late-season special-status plants that may be affected by the project, and mitigating any significant adverse impacts to them through additional on-site avoidance and protection, or through acquiring and protecting lands off-site, or through other off-site measures such as habitat improvement or management. This strategy is described in greater detail in the SSA. Staff concludes that this mitigation strategy is both feasible and effective.

Impacts to Common Wildlife

Impacts to common wildlife from the implementation of Scenario 5.5 or Scenario 6 would be similar to the proposed project. However, the magnitude and intensity of these impacts would be proportionately reduced due to the 26-32 percent decrease in project size for each Scenario respectively.

The reduction in acreage for both Scenarios would provide greater access to habitat for common wildlife. In addition, the project would minimize impacts to the foothills of the Cady Mountains and would reduce impacts to common wildlife. However, Scenario 6 would avoid an additional 370 acres of high quality habitat and provide the widest linkage area between the project fence line and the Cady Mountains. In addition, Scenario 6 would avoid several major terrain features including a large basalt outcrop within Scenario 5.5 which likely provides micro habitats for a variety of wildlife.

Staff has concluded that even with the reduction in size of Scenario 5.5 and Scenario 6 impacts to wildlife would remain significant absent mitigation. To reduce and minimize effects to common wildlife, staff recommends Conditions of Certification **BIO-1** through **BIO-9** and **VIS-2** (Exterior Lighting Controls) (most recent staff revisions as identified in the preface).

Special-Status Wildlife

Scenario 5.5 and Scenario 6 support the same species that were addressed in the SSA. These include but are not limited to desert tortoise, Mojave fringe-toed lizard, burrowing owl, Le Conte's thrasher, golden eagles, Swainson's hawk, American badger, and Nelson's bighorn sheep. See **Biological Resource Table 3** in the SSA for a description of the sensitive species that have the potential to occur in the project area. Impacts to these special-status species are detailed below.

Impacts to Special-Status Reptiles

Mojave Fringe-Toed Lizard

Scenario 5.5 and Scenario 6 would have the same impacts to the Mojave fringe-toed lizard that were described in the SSA. Although these scenarios would result in a 26-32 percent decrease in project size for each scenario respectively, neither scenario avoids habitat occupied by this species (see **Biological Resources Figure 4** in the SSA). In addition, while the removal of the proposed detention basins would reduce the effects of sediment loss to areas supporting these species, the project's overall effects to habitat from construction and operation of the facility would still seriously degrade Mojave fringe-toed lizard habitat throughout the site. Therefore, impacts would remain significant absent mitigation.

Implementation of staff's proposed Conditions of Certification **BIO-1** through **BIO-9** and **BIO-13** (most recent staff revisions as identified in the Preface) would reduce impacts to Mojave fringe-toed lizards to less than significant. Staff's estimated costs for compensation land are presented in **Biological Resources Table 6** of the SSA.

Gila Monster

Potential impacts to this species from the implementation of Scenario 5.5 or Scenario 6 would be the same as the proposed project but the magnitude and intensity of these impacts would be proportionately reduced due to the 26-32 percent decrease in project size. By reducing the project size and minimizing project effects to the washes and bajadas of the Cady Mountains both Scenarios would reduce potential effects to this species should it occur.

Implementation of staff's proposed Conditions of Certification **BIO-1** through **BIO-9, BIO-14,** and **BIO-17** (most recent staff revisions as identified in the preface)**,** would reduce impacts to Gila monsters and their habitat to less-than-significant levels.

Desert Tortoise

Scenario 5.5 and Scenario 6 would result in the same types of direct, indirect, and operational impacts to desert tortoises that were analyzed in the SSA for the proposed project. However, Scenario 5.5 and Scenario 6 have been designed to reduce impacts to areas supporting the highest concentration of desert tortoise and their burrows. The potential impacts to desert tortoise and their habitat for each Scenario is discussed below. The formulas used to calculate estimates of tortoise density including adult, subadult, juvenile, and eggs have been presented in the SSA and are not discussed further in this document.

Impacts to Critical Habitat

There is no federally designated critical habitat for desert tortoise within the Scenario 5.5 or Scenario 6 development footprint. Potential impacts to critical habitat are the same as described in the SSA.

Direct Impacts

Scenario 5.5

Scenario 5.5 would result in the direct loss of approximately 4,614 acres of desert tortoise habitat. This includes 2,141 acres of habitat located between the BNSF railroad and Interstate 40 and 2,472 acres located north of the BNSF rail road. This Scenario specifically removes approximately 1,601 acres of habitat located along the northern border of the project which supports high concentrations of desert tortoise and their burrows. See Applicants Submittal of Reduced Project Boundary Scenarios (tn: 58411, Figures 11 and 12 [Scenario 6], and Figures 17 and 18 [Scenario 5.5]) for the revised site layout and boundary.

Six adult and four juvenile tortoises were detected during surveys within the Scenario 5.5 project footprint. Using the formulas described in the SSA this suggests the site supports an estimated 11 adult and sub-adult desert tortoise, between 5 and 11 juvenile desert tortoises, and approximately 56 eggs. As described in the SSA the estimate of 11 adult and subadult desert tortoises is the median point within the 95 percent confidence level for the value. That means that the 95 percent confidence interval for this estimate ranges from a low of four to a high of 29 adult and subadult desert tortoises. However, for the purposes of the analysis staff is using the median value of 11 desert tortoises. Therefore Scenario 5.5 could support a total population of approximately 22 adults, subadults, and juvenile desert tortoise, and approximately 56 eggs. In addition to the desert tortoises identified in the Scenario 5.5 area one adult and one juvenile desert tortoise were detected in the small exclusion area west of the southern NAP. These desert tortoises where not considered in the USFWS formula but fall within the range of expected tortoises that would require translocation during implementation of Scenario 5.5. **Biological Resource Addendum Table 6a** contains a concise description of the expected number of tortoises that could be affected by Scenario 5.5.

Biological Resources Addendum Table 6a
Desert Tortoise Density Estimates and Impact Summary for Scenario 5.5

	Estimated Number of Tortoises			
Project Feature	Adult/Sub-adult* (Min-Max)	Juveniles** (Min-Max)	Eggs***	Total Adult/Sub-adult and Juvenile (Min-Max)****
Direct Effects				
Project site[1]	11 (4-29)	11 (5-11)	56	22 (6-59)
Translocation Area[2]	11 (4-29)	11 (5-11)	N/A	22 (6-59)
Control Area[3]	11 (4-29)	11 (5-11)	N/A	22 (6-59)
Subtotal	**33 (12--87)**	**33 (15-33)**	**56**	**66 (18-177)**
Indirect Effects				
Buffer Area[4]	37	39 (17-39)	N/A	76 (54-76)
NAP Area A[5]	24	15 (11-15)	N/A	39 (35-39)
Subtotal	**61**	**54 (28-54)**	**N/A**	**115 (89-115)**
Total Direct and	**94 (12-87)**	**87 (43-87)**	**56**	**181 (107-292)**

Indirect				

*Assumption based on USFWS formula.
** Table assumes high end of juveniles present.
*** Assumes a 1:1 sex ratio and that all females present would clutch in a given year.
****Min-Max values are not additive with the data in the preceding columns. Minimum total tortoise values use the lower limit of the 95% confidence level (**4**-29) of the USFWS formula added to the minimum percentage identified by Turner et al (**5**-11) for estimating the number of juvenile tortoises in a population. Therefore the minimum estimated total population on the project site is 4+5=9 desert tortoises. Maximum tortoise values use the upper limit of the 95% confidence level (4-**29**) of the USFWS formula added to the maximum percentage identified by Turner et al equation (51.1 %) for estimating the number of juveniles tortoise in a population. Therefore the maximum estimated number of total desert tortoise on the project site is 29+30=59.
1. Includes 4,614 acres project site.
2. Assumes one tortoise handled at the translocation site for each translocated tortoise.
3. Assumes one tortoise handled at the control site for each translocated tortoise.
4. Assumes a 1,000-foot buffer and a tortoise density of 16 tortoises per square mile.
5. Assumes the 960-acre NAP Area A supports up to 24 tortoises.

Scenario 5.5 is located entirely within the proposed project area identified and analyzed in the SSA. Implementation of Scenario 5.5 would constitute a 26 percent reduction in impacts to desert tortoise habitat when compared to the proposed project and avoids most of the land supporting the highest tortoise densities. This Scenario also reduces impacts to the northern linkage area where more complex topography appears to provide better foraging opportunities and more stable soils for burrowing.

Under Scenario 5.5 desert tortoise would be subject to same types of impacts described in the SSA. However, when compared to the proposed project, Scenario 5.5 would result in a net reduction in the number of desert tortoise lost through direct mortality from construction activities, direct loss through translocation, and from potential indirect effects of translocation mortality.

For Scenario 5.5 staff concludes that approximately 22 adult and subadult desert tortoises and 56 eggs would be subject to direct and indirect effects on the project site. In addition, it is expected that 56 eggs and approximately two juvenile desert tortoises will be lost during construction. This assumes that 85 percent of juveniles (i.e., 85 percent of 11 juveniles) will be overlooked based on the 15 percent detection rate for juveniles identified during the 2010 surveys. Compared to the proposed project identified in the SSA which supported an estimated 189 adult and subadult desert tortoises, implementation of Scenario 5.5 reduces impacts to this species on the project site by approximately 88 percent.

Scenario 5.5 also reduces the number of desert tortoise that would require translocation when compared to the proposed project. Implementation of Scenario 5.5 would require the translocation of approximately 13 desert tortoise (11 adults and subadults, and 2 juveniles) from the project site compared to 107 (93 adults and subadults and 14 juveniles) for the proposed project.

As described in the SSA for every tortoise that is moved to a long distance translocation site, two other tortoises must be handled, disease tested, and radio tagged. Therefore three tortoises are handled for each translocation, including one tortoise from the project site; one tortoise from the host population at the proposed recipient site; and one tortoise at the control site. For Scenario 5.5 this projects to an estimated 39 tortoises

(11 adults and subadults and 2 juveniles x 3) that would potentially require handling, radio tagging, and long term monitoring compared to 321 tortoises (93 adults + 14 juveniles x 3) identified for the proposed project. As described in the SSA some juveniles may be too small to accommodate the radio-tag, and the final number of desert tortoises that are detected and translocated may be somewhat lower that what is described in this analysis.

Assuming the estimated 50 percent mortality figures identified in the SSA for translocated desert tortoise and the 5 percent mortality figure associated with handling desert tortoises at the control site, translocation mortality to desert tortoise could be as high as 20 tortoises. Adding the potential loss of 56 eggs and up to 9 juveniles not detected during the clearance surveys the Scenario 5.5 could result in the mortality of up to 29 tortoises and 56 eggs. This is substantially lower than the proposed project which identified potential mortality rates of approximately 194 tortoises and 436 eggs.

An important consideration for Scenario 5.5 is that with the removal of project components from within the northern linkage area, the CDFG, BLM, and USFWS indicated that any desert tortoises detected within 500m of the northern boundary may be translocated into this northern area (Personal Communication with USFWS biologist Ashleigh Blackford 14 September 2010). This will likely reduce the number of desert tortoises that would require translocation to the greater than 500m translocation sites identified in the Ord Rodman Desert Wildlife Management Area (DWMA). In addition, allowing the translocation of tortoises into this area will likely reduce translocation related mortality as it is likely that some of the desert tortoises will remain within a portion of their home range. This would likely minimize both stress and predation risks to desert tortoise as the animals will likely be able to utilize known burrows and refugia.

Based on the proposed project footprint identified in the SSA this area was not considered a potential translocation site due to the high density of desert tortoise that were documented in this area and the limited space available to accommodate the existing animals. However, in some locations this Scenario increases the width of the linkage area by over a mile. It is also likely that portions of this avoided area are within the home range for at least a portion of the desert tortoises that have been documented in the Scenario 5.5 footprint. With the addition of the avoided lands, translocating desert tortoise into these areas is not expected to compromise the existing populations of animals that occur in this area.

Implementation of this Scenario also reduces the requirement to obtain or identify additional translocation areas. As described in the SSA the existing translocation sites were not large enough to accommodate the maximum number of tortoises that could be detected on the proposed project site. However, based on the reduced number of desert tortoise expected to occur in the Scenario 5.5 project area, the ability of the northern linkage area to accommodate additional tortoises, and placement of two desert tortoises into the Pisgah ACEC, the existing translocation sites would be large enough to support the translocation efforts barring the large scale presence of diseased animals or other deleterious factors.

Even with the reduction in project size associated with Scenario 5.5 impacts to desert tortoise would remain significant absent mitigation. In response to workshops and

evidentiary hearings staff has incorporated some of the recommendations suggested by the applicant. In addition, staff has revised the compensatory mitigation requirements for desert tortoise to reflect the acreage changes and mitigation ratios identified in the analysis. Implementation of staff's proposed Conditions of Certification **BIO-1** through **BIO-9**, **BIO-15** through **BIO-18** (most recent staff revisions as identified in the preface) would reduce impacts to desert tortoise to less-than-significant levels under CEQA and would also satisfy the CESA requirements to fully mitigate impacts to desert tortoise under Fish and Game Code Section 2081.

As required by CESA under Scenario 5.5 a maximum of 181 tortoises and 56 eggs would be subject to direct and indirect effects. This includes capture, disease testing, and relocation of desert tortoise on the project site, the control group site, and the resident translocation site. This number is based on the estimates provided in **Biological Resource Addendum Table 6a**. The take of desert tortoise at numbers higher than indentified in **Biological Resource Addendum Table 6a** is not authorized.

Scenario 6

Scenario 6 would result in the direct loss of approximately 4,244 acres of desert tortoise habitat. This includes 2,141 acres located between the BNSF railroad and Interstate 40 and 2,104 acres located north of the BNSF rail road. This Scenario specifically removes approximately 1,971 acres of habitat located along the northern border of the project. This area supports highest concentrations of desert tortoise and their burrows. See Applicant's Submittal of Reduced Project Boundary Scenarios (tn: 58411, Figures 11 and 12 [Scenario 6], and Figures 17 and 18 [Scenario 5.5]) for the revised site layout and boundary.

One adult and three juvenile desert tortoises were detected during 2010 field surveys within the Scenario 6 project footprint. Using the formulas described in the SSA this suggests the site supports an estimated two adult and subadult desert tortoise, between one and two juvenile desert tortoises, and approximately nine eggs. As described above the estimate of two adult and subadult desert tortoises is the median point within the 95 percent confidence level for the value. That means that the 95 percent confidence interval for this estimate ranges from a low of zero to a high of ten adult and subadult desert tortoises. For the purposes of the analysis staff is using the median value of two desert tortoises. Therefore Scenario 6 could support a total population of approximately four adults, subadults, and juvenile desert tortoise, and approximately nine eggs. As described above for Scenario 5.5, one adult and one juvenile desert tortoise occur in the small exclusion area west of the southern NAP and would translocation during implementation of Scenario 6. **Biological Resource Addendum Table 6b** contains a concise description of the expected number of tortoises affected by Scenario 6.

Biological Resources Addendum Table 6b
Desert Tortoise Density Estimates and Impact Summary for Scenario 6

	Estimated Number of Tortoises			
Project Feature	Adult/Subadult* (Min-Max)	Juveniles** (Min-Max)	Eggs***	Total Adult/Subadult and Juvenile
Direct Effects				

Project site[1]	2 (0-10)	2 (1-2)	9	4 (0-20)
Translocation Area[2]	2 (0-10)	2 (1-2)	N/A	4 (0-20)
Control Area[3]	2 (0-10)	2 (1-2)	N/A	4 (0-20)
Subtotal	**6 (0-30)**	**6 (3-6)**	**9**	**12 (0-60)**
Indirect Effects				
Buffer Area[4]	37	39 (17-39)	N/A	76 (54-76)
NAP Area A[5]	24	15 (11-15)	N/A	39 (35-39)
Subtotal	**61**	**54 (28-54)**	**N/A**	**115 (89-115)**
Total Direct and Indirect	**67 (0-30)**	**60 (31-60)**	**9**	**127 (89-264)**

*Assumption based on USFWS formula.
** Table assumes high end of juveniles present.
*** Assumes a 1:1 sex ratio and that all females present would clutch in a given year.
****Min-Max values are not additive with the data in the preceding columns. Minimum total tortoise values use the lower limit of the 95% confidence level (**0**-10) of the USFWS formula added to the minimum percentage identified by Turner et al (**1**-2) for estimating the number of juvenile tortoises in a population. Therefore the minimum estimated total population on the project site is 0+0=0 desert tortoises. However, 4 tortoises were detected on the Scenario project site. Because of the low number of tortoise detected on site the lower limit of the USFWS formula calculated a zero value. Use of a zero value in the equation for the minimum number of tortoises results in a value of zero for the minimum tortoise density on the project site. The Maximum tortoise values use the upper limit of the 95% confidence level (0-**10**) of the USFWS formula added to the maximum percentage identified by Turner et al equation (51.1 %) for estimating the number of juveniles tortoise in a population. Therefore the maximum estimated number of total desert tortoise on the project site is 10+10=20.
1. Includes 4,244 acres project site.
2. Assumes one tortoise handled at the translocation site for each translocated tortoise.
3. Assumes one tortoise handled at the control site for each translocated tortoise.
4. Assumes a 1,000 foot buffer and a tortoise density of 16 tortoises per square mile.
5. Assumes the 960 acre NAP Area A supports up to 24 tortoises.

Scenario 6 is located entirely within the proposed project area identified and analyzed in the SSA. Implementation of Scenario 6 would constitute a 32 percent reduction in impacts to desert tortoise habitat when compared to the proposed project and avoids the highest densities of desert tortoise and their burrows. Scenario 6 further reduces impacts to the northern linkage area when compared to the proposed project or Scenario 5.5 and avoids most of the complex topography that is associated with the highest concentrations of desert tortoise.

Under Scenario 6 desert tortoise would be subject to the same types of impacts described in the SSA. However, when compared to the proposed project or Scenario 5.5, this Scenario would avoid the majority of desert tortoise on the original project site and would result in a substantial reduction in the number of desert tortoise lost through direct mortality from construction activities, direct loss through translocation, and from potential indirect effects of translocation based mortality.

For Scenario 6, staff concludes that approximately four adult and subadult desert tortoises and nine eggs would be subject to direct and indirect effects on the project site. In addition, it is expected that nine eggs and at potentially two juvenile desert tortoises (i.e., 85 percent of 2 juveniles = 1.7 rounded to 2) would be lost during construction. Compared to the proposed project identified in the SSA which supported an estimated 189 adult and subadult desert tortoises, implementation of Scenario 6 reduces impacts to desert tortoise by approximately 98 percent. Compared to Scenario 5.5, which supported an estimated 22 adult and subadult desert tortoises, implementation of Scenario 6 would reduce impacts to this species by approximately 18 percent.

Compared to the proposed project and Scenario 5.5, Scenario 6 substantially reduces the number of desert tortoise that would require translocation. Implementation of Scenario 6 would require the translocation of approximately five desert tortoise (4 adults and subadults, and 1 juvenile) from the project site compared to 107 (93 adults and subadults and 14 juveniles) for the proposed project, and 13 desert tortoise (11 adults and subadults, and 2 juveniles) for Scenario 5.5.

For Scenario 6 this projects to an estimated 15 desert tortoises (4 adults and subadults and 1 juvenile x 3) that would potentially require handling, radio tagging, and long term monitoring compared to 321 desert tortoises (93 adults + 14 juveniles x 3) identified for the proposed project and 39 desert tortoises(11 adults + 2 juveniles x 3) for Scenario 5.5.

Using the estimated 50 percent mortality figures identified in the SSA for translocated desert tortoise and the five percent mortality figure associated with handling desert tortoises at the control site, translocation mortality to desert tortoise for Scenario 6 could be as high as six tortoises. Adding the potential loss of nine eggs and up to two juveniles not detected during the clearance surveys, Scenario 6 could result in the mortality of up to eight tortoises and nine eggs. This is substantially lower than the proposed project which identified potential mortality rates of approximately 194 tortoises and 436 eggs and Scenario 5.5 which could result in the mortality of up to 29 tortoises and 56 eggs.

Implementation of this Scenario also reduces the requirement to obtain or identify additional translocation areas. As with Scenario 5.5 it is likely that some of the desert tortoises detected on the project site would be translocated into the northern linkage area. This will further reduce the number of desert tortoises that would require translocation to the greater than 500m translocation sites identified in the Ord Rodman DWMA when compared to the proposed project or Scenario 5.5. However, at least five desert tortoise observations occur at least 0.5 miles or more from the northern boundary. It is expected that these tortoises would be moved to the Pisgah ACEC or the receptor sites in the Ord Rodman DWMA.

Although Scenario 6 avoids most of the desert tortoise on the project site impacts to this species would remain significant absent mitigation. In response to the ongoing workshops and evidentiary hearings staff has incorporated some of the recommended revisions to the Conditions of Certification suggested by the Applicant. In addition, staff has revised the compensatory mitigation requirements for desert tortoise to reflect the

acreage changes and mitigation ratios identified in the analysis. Implementation of staff's proposed Conditions of Certification **BIO-1** through **BIO-9**, **BIO-15** through **BIO-18** (most recent staff revisions as identified in the preface) would reduce impacts to desert tortoise to less-than-significant levels under CEQA and would also satisfy the CESA requirements to fully mitigate impacts to desert tortoise under Fish and Game Code Section 2081.

As required by CESA under Scenario 6 a maximum of 127 tortoises and nine eggs would be subject to direct and indirect effects. This includes capture, disease testing and relocation of desert tortoise on the project site, the control group site, and the resident translocation site. This number is based on the estimates provided in **Biological Resource Addendum Table 6a**. The take of desert tortoise at numbers higher than indentified in **Biological Resource Addendum Table 6a** is not authorized.

Translocation

The discussion of translocation impacts to desert tortoise is the same as described in the SSA; however with the reduction in project size the scale and magnitude of the translocation effort has been substantially reduced. In addition, as described above both Scenario 5.5 and Scenario 6 reduce impacts to habitat located within the northern linkage area. This will avoid the most densely populated areas on the project site and increase the width and functional value of the linkage area. This will also allow for any desert tortoise located within 500m of the northern boundary to be translocated into this area.

To date the Draft Desert Tortoise Translocation Plan remains to be finalized and is being actively reviewed and commented on by the agencies. In addition, testimony provided by the CDFG and other recognized experts during the 18 August 2010 evidentiary hearings are being reviewed by the applicant, staff, and the agencies. Based on the existing recommendations of the agencies and staff, it is expected that substantial revisions will be made to the Draft Desert Tortoise Translocation Plan prior to approval. The reduction in project size for both Scenario 5.5 and Scenario 6 reduces the number of desert tortoise that would require translocation. This substantially reduces the risks associated with handling and translocating desert tortoise and is expected to limit the amount of translocation mortality that could occur.

Implementation of staff's proposed Conditions of Certification **BIO-1** through **BIO-9**, **BIO-15** through **BIO-18** (most recent staff revisions as identified in the preface) would reduce impacts to desert tortoise to less-than-significant levels under CEQA and would also satisfy the CESA requirements to fully mitigate impacts to desert tortoise under Fish and Game Code Section 2081.

Habitat Loss and Compensatory Mitigation

The discussion of habitat loss and compensatory mitigation is the same as described in the SSA; however the total mitigation requirements have been adjusted to reflect the reduced project footprints presented for Scenario 5.5 and Scenario 6. In addition, for Scenario 5.5 approximately 369 acres would require compensatory mitigation at a ratio of 5:1 due to the high density of desert tortoise that occur in portions of the Scenario 5.5 footprint.

In response to the data workshops and evidentiary hearings staff has incorporated some of the recommendations suggested by the Applicant into the Conditions of Certification. In addition, staff has revised the compensatory mitigation requirements for desert tortoise to reflect the acreage changes and mitigation ratios identified in the analysis. Implementation of staff's proposed Conditions of Certification **BIO-1** through **BIO-9** and **BIO-15** through **BIO-18** (most recent staff revisions as identified in the preface) would reduce impacts to desert tortoise to less-than-significant levels under CEQA and would also satisfy the CESA requirements to fully mitigate impacts to desert tortoise under Fish and Game Code Section 2081.

State and Federal Desert Tortoise Mitigation Requirements

The discussion of State and federal desert tortoise mitigation standards is the same as described in the SSA; however the total compensatory mitigation requirements have been adjusted to reflect the reduced project footprints presented for Scenario 5.5 and Scenario 6. The total acreage of desert tortoise compensation land acquisition and protection for Scenario 5.5 and Scenario 6 would be 10,302 acres and 8,452 acres respectfully. Staff estimates total cost of acquisition, protection, and enhancement at $31,079,934 for Scenario 5.5 and $25,545,484 for Scenario 6 if the applicant chooses to do the habitat compensation.

In response to the data workshops and evidentiary hearings staff has incorporated some of the recommendations suggested by the applicant into the conditions of certification. In addition, staff has revised the compensatory mitigation requirements for desert tortoise to reflect the acreage changes and mitigation ratios identified in the analysis. Implementation of staff's proposed Conditions of Certification **BIO-1** through **BIO-9** and **BIO-15** through **BIO-18** (most recent staff revisions as identified in the Preface) would reduce impacts to desert tortoise to less-than-significant levels under CEQA and would also satisfy the CESA requirements to fully mitigate impacts to desert tortoise under Fish and Game Code Section 2081. Staff's proposed Condition of Certification **BIO-17**, Desert Tortoise Compensatory Mitigation, and is updated in this Addendum.

Integrating State and Federal Desert Tortoise Mitigation

The discussion of integrating State and federal desert tortoise mitigation standards is the same as described in the SSA; however the total mitigation requirements have been adjusted to reflect the reduced project footprints presented for Scenario 5.5 and Scenario 6.

Calculation of Security for Desert Tortoise Compensatory Mitigation

The discussion calculating the required security for desert tortoise compensation is the same as described in the SSA; however the security costs have been adjusted to reflect the reduced project footprints presented for Scenario 5.5 and Scenario 6. These calculations are presented in **Biological Resources Addendum Table 7**.

Biological Resources Addendum Table 7
Summary of Desert Tortoise Compensation Lands Costs:
Scenarios 5.5 and 6[1]

	Scenario 5.5	Scenario 6
Number of acres	10,302	8,452
Estimated number of parcels to be acquired, at 320 acres per parcel[2]	33	27
Land cost at $1000/acre[3]	$10,302,000.00	$8,452,000.00
Level 1 Environmental Site Assessment at $3000/parcel	$99,000.00	$81,000.00
Appraisal at no less than $5,000/parcel	$165,000.00	$135,000.00
Initial site clean-up, restoration or enhancement, at $250/acre[4]	$2,575,500.00	$2,113,000.00
Closing and Escrow Cost at $5000/parcel[5]	$165,000.00	$135,000.00
Biological survey for determining mitigation value of land (habitat based with species specific augmentation) at $5000/40-ac parcel ($125/acre)	$660,000.00	$540,000.00
3rd Party Administrative Costs (Land Cost x 10%)[6]	$1,030,200.00	$845,200.00
Agency cost to accept land[7] [(Land Cost x 15%) x 1.17] (17% of the 15% for overhead)	$1,205,334.00	$988,884.00
Subtotal - Acquisition and Initial Site Work	$16,142,034.00	$13,290,084.00
Long-term Management and Maintenance Fund (LTMM) fee at $1450/acre[8]	$14,937,900.00	$12,255,400.00
Subt.	$31,079,934.00	$25,545,484.00
NFWF Fees		
Establish Project Specific Account	$12,000.00	$12,000.00
Pre-proposal modified RFP or RFP processing[9]	$30,000.00	$30,000.00
NFWF Management fee For Acquisition and Enhancement Actions (Subtotal x 3%)	$484,261.02	$398,702.52
NWFW Management Fee for LTMM account (LTMM x 1%)	$149,379.00	$122,554.00
Subtotal of NFWF Fees	$675,640.00	$563,256.52
TOTAL Estimated cost for deposit in project specific REAT-NFWF Account	**$31,755,574.02**	**$26,108,740.52**

1. Estimates prepared in consultation with CDFG, USFWS, and BLM. All costs are best estimates as of summer 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation.
2. For the purposes of determining costs, a parcel is defined as 320 acres, recognizing that some will be larger and some will be smaller, but that 320 acres provides a good estimate for the number of transactions anticipated (based on input from BLM and CDD).
3. Generalized estimate taking into consideration a likely jump in land costs due to demand, and an 18-24 month window to acquire the land after agency decisions are made. If the agencies, developer, or 3rd party has better information on land costs in the specific area where project-specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
4. Based on information from CDFG.
5. Two transactions: landowner to 3rd party; 3rd party to agency.
6. Includes staff time to work with agencies and landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; review of acquisition documents; assembling acquisition acreage, and related tasks)
7. This amount covers the estimate of BLM's cost to accept the land into the public management system and costs associated with tracking/managing the costs associated with the donation acceptance, includes two physical inspections; review and approval of the Level 1 ESA

assessment; review of all title documents; drafting deed restrictions; issue escrow instructions; mapping the parcels, and related tasks.

8. Estimate for purposes of calculating general costs. The actual long term management costs will be determined using a PAR (Property Assessment Report) or PAR-like analysis tailored to the specific acquisition. Includes land management; enforcement and defense of easement or title [short and long term]; and monitoring.
9. If determined necessary by the REAT agencies if multiple 3rd parties have expressed interest; for transparency and objective selection of 3rd party to carry out acquisition.

Indirect Impacts to Desert Tortoise

Scenarios 5.5 and Scenario 6 would result in the same types of indirect impacts to desert tortoises that were analyzed in the SSA for the proposed project.

Ravens, Coyotes, and Other Predators

Impacts associated with the implementation of Scenario 5.5 and Scenario 6 would be the same as described in the SSA; however, the scale and magnitude of these effects would be reduced.

Regional Approach to Raven Control

Staff's recommended regional approach to raven control for Scenario 5.5 and Scenario 6 is the same as described for the proposed project in the SSA (as amended in staff's **Rebuttal Testimony and Errata** (tn: 57800, July 29, 2010). However, the fees required to comply with Conditions of Certification **BIO-18** (Raven Monitoring, Management, and Control Plan) have been revised in this Addendum to reflect the reduced project footprint. Based on the new Scenarios, staff recommends that the applicant shall provide a onetime fee based on the total loss of desert tortoise habitat. For Scenario 5.5 this fee would be $494,159.40 and for Scenario 6 this fee would be $454,532.40.

Increased Risk from Roads/Traffic

Potential impacts from vehicle traffic to this species from the implementation of Scenario 5.5 or Scenario 6 would be the same as the proposed project but the magnitude and intensity of these impacts would be proportionately reduced due to the 26-32 percent decrease in project size.

Conclusion – Impacts and Mitigation for Desert Tortoise

Biological Resource Addendum Table 6c contains a summary of the impacts to desert tortoise and their habitat that would occur from implementation of the proposed project identified in the SSA and for Scenario 5.5 and Scenario 6.

Biological Resources Addendum Table 6c

Desert Tortoise Impact Summary

		Estimated Number of Adult/Subadult and Juvenile Tortoise				
Project Component	**Habitat (Acres)**	**USFWS Formula (Min-Max)**	**Requiring Translocation**	**Handled**	**Direct - Indirect Impacts (Min-Max)**	**Maximum Potential Mortality**
Proposed Project	6,215	189 (69-378)	107	321	682 (300-1249)	194 tortoise 436 eggs
Scenario 5.5	4,614	22 (6-59)	13	39	181 (107-292)	29 tortoise 56 eggs
Scenario 6	4,244	4 (0-20)	5	15	127 (89-264)	6 tortoise 9 eggs

When compared to the proposed project addressed in the SSA; the implementation of Scenario 5.5 and Scenario 6 reduce direct and indirect impacts to desert tortoise and their habitat. In addition these Scenarios substantially decrease the number of desert tortoise that would be subject to construction related disturbance including direct mortality from crushing or entombment and other project related effects including translocation to off site locations.

In total Scenario 5.5 and Scenario 6 would result in the direct loss of approximately 4,614 acres and 4,244 acres of desert tortoise habitat respectively. The reduction in acreage for both Scenarios would avoid areas currently supporting high concentrations of desert tortoise and their burrows and would increase the width of the linkage area that occurs along the foothills of the Cady Mountains. However, Scenario 6 would provide the widest linkage area and would avoid the largest concentrations of desert tortoise habitat, burrows, and observed desert tortoises.

An estimated 22 adult and subadult desert tortoises and 56 eggs occur on the Scenario 5.5 project site compared to approximately four adult and subadult desert tortoises and nine eggs for the Scenario 6 project site. The proposed project site identified in the SSA supports an estimated 189 adult and subadult desert tortoises. The implementation of Scenario 6 reduces impacts to desert tortoise by approximately 98 percent compared to an 82 percent reduction for Scenario 5.5.

The reduced project area minimizes the number of desert tortoise that would be subject to translocation efforts. Implementation of Scenario 6 would require the translocation of approximately five desert tortoises compared to 13 desert tortoises for Scenario 5.5, and 107 for the proposed project. As described in the SSA, for every desert tortoise that is moved to a long distance translocation site, two other desert tortoises must be handled, disease tested, and radio tagged. Therefore three desert tortoises are handled

for each translocation, including one desert tortoise from the project site; one desert tortoise from the host population at the proposed recipient site; and one desert tortoise at the control site. For Scenario 6 this projects to an estimated 15 desert tortoises that would require handling, radio tagging, and long term monitoring compared to 39 desert tortoises for Scenario 5.5, and 321 desert tortoises for the proposed project.

Scenario 5.5 and Scenario 6 would also have lower mortality rates when compared to the proposed project addressed in the SSA. Translocation and construction mortality associated with Scenario 5.5 could include approximately 29 tortoises and 56 eggs compared Scenario 6 could be as high as six tortoises. This is substantially lower than the proposed project which identified potential mortality rates of approximately 194 tortoises and 436 eggs.

As required by CESA under Scenario 5.5 a maximum of 181 tortoises and 56 eggs would be subject to direct and indirect effects. For Scenario 6 a maximum of 127 tortoises and nine eggs would be subject to direct and indirect effects. This includes capture, disease testing and relocation of desert tortoise on the project site, the control group site, and the resident translocation site. This number is based on the estimates provided **in Biological Resource Addendum Tables 6a** and **6b**. The 'take' of desert tortoise at numbers higher than indentified in **Biological Resource Addendum Tables 6a** and **6b** is not authorized.

In conclusion, even with the reduction in project size both Scenario 5.5 and Scenario 6 would have significant impacts absent mitigation. However, the implementation of Scenario 6 would result in the lowest impacts to desert tortoise and their habitat. This Scenario substantially reduces direct, indirect, and operational impacts to desert tortoise; avoids high concentrations of desert tortoise on the project site; minimizes impacts to the wildlife linkage area; and reduces the number of tortoises that would require translocation to off-site areas.

Implementation of staff's proposed Conditions of Certification **BIO-1** through **BIO-9** and **BIO-15** through **BIO-18** (most recent staff revisions as identified in the Preface) would reduce impacts to less-than-significant levels under CEQA and would satisfy the CESA requirements to fully mitigate impacts to desert tortoise under Fish and Game Code Section 2081.

Migratory/Special-Status Bird Species

Impacts to migratory and nesting birds from the implementation of Scenario 5.5 and Scenario 6 would be the same as described in the SSA. However, the magnitude and intensity of these impacts would be proportionately reduced due to the 26-32 percent decrease in project size for each Scenario respectively.

The reduction in acreage for both Scenarios would provide greater access to foraging habitat and would avoid the linkage area along the foothills of the Cady Mountains which may provide greater nesting opportunities for species that utilize the rocky outcrops and microphyll woodlands that occur in these areas.

Implementation of staff's proposed Conditions of Certification **BIO-17** and **BIO-19** (most recent staff revisions as identified in the preface) would reduce impacts to less-than-significant levels under CEQA.

Swainson's Hawk

Impacts to Swainson's hawk from the implementation of Scenario 5.5 and Scenario 6 would be the same as described in the SSA.

Implementation of staff's proposed Conditions of Certification **BIO-17** (most recent staff revisions as identified in the preface) would reduce impacts to less-than-significant levels under CEQA.

Golden Eagle

Impacts to golden eagles from the implementation of Scenario 5.5 and Scenario 6 would be the same as described in the SSA. However, the loss of foraging habitat would be proportionately reduced due to the 26-32 percent decrease in project size for each Scenario respectively. In addition, Scenario 5.5 and Scenario 6 provide greater buffer areas between the solar arrays and potential nesting habitat in the Cady Mountains. These Scenarios also increase the distance between the projects and known golden eagle nests. The distance to the active golden eagle nest located approximately 3.5 miles east of the proposed project area would not change; however this nest does not occur in the line of sight of either Scenario.

Implementation of staff's proposed Conditions of Certification **BIO-1** through **BIO-9, BIO-17, BIO-20,** and **BIO-22** (most recent staff revisions as identified in the Preface) would reduce impacts to less-than-significant levels under CEQA.

Burrowing Owl

Impacts to burrowing owls from the implementation of Scenario 5.5 and Scenario 6 would be the same as described in the SSA. However, the loss of foraging habitat would be proportionately reduced due to the 26-32 percent decrease in project size for each Scenario respectively. In addition, the revised project footprints for both Scenarios would provide a larger buffer between the solar arrays and known owl burrows.

Implementation of staff's proposed Conditions of Certification **BIO-1** through **BIO-10** and **BIO-21** (most recent staff revisions as identified in the preface), the project's impacts to burrowing owls would be mitigated to less-than-significant under CEQA.

Special-Status Mammals

Nelson's Bighorn Sheep

Impacts to Nelson's bighorn sheep from the implementation of Scenario 5.5 or Scenario 6 would be similar to the proposed project. However, the magnitude and intensity of these impacts would be proportionately reduced due to the 26-32 percent decrease in project size for each Scenario respectively. Nelson's bighorn sheep is known to occur in the project area and forages in the foothills of the Cady Mountains. The reduction in acreage for both Scenarios would provide greater access to foraging habitat and would provide a greater buffer between the project and the foothills of the Cady Mountains.

Scenario 6 would provide the widest linkage area and would avoid several major terrain features including a large basalt outcrop that is present in Section 6 of Scenario 5.5.

Implementation of staff's proposed Conditions of Certification **BIO-1** through **BIO-9** and **BIO-23** (most recent staff revisions as identified in the preface) would reduce impacts to bighorn sheep to less-than-significant levels under CEQA.

American Badger and Desert Kit Fox

Impacts to badgers and kit foxes from the implementation of Scenario 5.5 or Scenario 6 would be similar to the proposed project. However, the magnitude and intensity of these impacts would be proportionately reduced due to the 26-32 percent decrease in project size for each Scenario respectively. In addition, at least one active badger den would be avoided by both Scenario 5.5 and Scenario 6.

The reduction in acreage for both Scenarios would also reduce impacts to foraging habitat and would provide a wider linkage area to support movement for these species along the foothills of the Cady Mountains. Scenario 6 would provide the widest linkage area and would avoid several major terrain features including a large basalt outcrop that is present in Section 6 of Scenario 5.5.

Implementation of staff's proposed Conditions of Certification **BIO-24** would reduce impacts to the American badger and desert kit fox. Staff's proposed Condition of Certification **BIO-17**, the compensatory mitigation plan for desert tortoise habitat (most recent staff revisions as identified in the preface), would offset the loss of habitat for this species and reduce the impact from habitat loss to less-than-significant levels under CEQA.

Special-Status Bats

Impacts to badgers and kit foxes from the implementation of Scenario 5.5 or Scenario 6 would be similar to the proposed project. However, the magnitude and intensity of these impacts would be proportionately reduced due to the 26-32 percent decrease in project size for each Scenario respectively.

Implementation of staff's proposed Conditions of Certification **BIO-25** (most recent staff revisions as identified in the preface) would reduce project impacts to less-than-significant levels under CEQA.

Impacts to Wildlife Movement Corridors

Implementation of Scenario 5.5 or Scenario 6 would result in the same types of impacts to movement as described in the SSA. However, the magnitude and intensity of these impacts would be proportionately reduced due to the 26-32 percent decrease in project size for each Scenario respectively.

Project fencing for both Scenario 5.5 and Scenario 6 would result in the same barriers to north-south movement across the project site and would hinder movement for less motile species such as desert tortoise and Mojave fringe-toed lizard. However, these effects would be lower than the proposed project. In addition, use of the habitat within the northern linkage area would increase and impacts to east-west movement would be

further reduced for both Scenarios. Scenario 6 would avoid the most habitat and provide for the largest movement corridor.

Implementation of staff's proposed Conditions of Certification **BIO-8** and **BIO-9** (most recent staff revisions as identified in the preface) would reduce project impacts to less-than-significant levels under CEQA.

IMPACTS TO WATERS OF THE STATE

Implementation of Scenario 5.5 or Scenario 6 would result in the same types of impacts to State jurisdictional waters as described in the SSA. However, the reduced project footprints would avoid ephemeral washes and streams that occur in the foothills of the Cady Mountains and would avoid 3.3 acres of microphyll woodland that occurs in the northeast corner of the site.

Impacts to State waters under Scenario 5.5 and Scenario 6 would be 155.2 acres and 129.8 acres respectively. This would be a reduction of 46 percent for Scenario 5.5 and 55 percent for Scenario 6 when compared to the proposed project identified in the SSA. Although Scenario 5.5 and Scenario 6 have not proposed the use of detention basins that would be expected to adversely affect State jurisdictional waters in downstream areas; staff considers impacts to State jurisdictional waters on the project site to be permanent.

With the exception of revising the acreage required to provide compensatory mitigation for impacts to State jurisdictional waters; no changes to the Conditions of Certification have been proposed. Implementation of staff's proposed Conditions of Certification **BIO-26** and **BIO-28** would reduce project impacts to less-than-significant levels under CEQA.

OPERATION IMPACTS AND MITIGATION

Ravens

Operational impacts from raven predation for Scenario 5.5 or Scenario 6 would be similar to the proposed project. However, the magnitude and intensity of these impacts would be proportionately reduced due to the 26-32 percent decrease in project size for each Scenario respectively.

Implementation of staff's proposed Conditions of Certification **BIO-8** and **BIO-18** (most recent staff revisions as identified in the preface), would reduce project impacts to less-than-significant levels under CEQA.

Cumulative/Regional Impacts of Ravens

Scenario 5.5 and Scenario 6 would have the same cumulative/regional impacts from raven predation that were analyzed for the proposed project in the SSA. However, the projects contribution would be would be proportionately reduced due to the 26-32 percent decrease in project size for each Scenario respectively.

Implementation of staff's proposed Conditions of Certification **BIO-18** (most recent staff revisions as identified in the preface) would minimize the project's potential to cause

effects of increased predation on desert tortoise by ravens to less-than-significant levels under CEQA.

Other Predators

Scenario 5.5 and Scenario 6 would have the same potential impacts to desert tortoises from feral and domestic dogs that were analyzed for the proposed project in the SSA.

Implementation of staff's proposed Conditions of Certification **BIO-6** and **BIO-8** (most recent staff revisions as identified in the preface) to would reduce the potential impacts of free-roaming or escaped pet dogs to less-than-significant levels under CEQA.

Increased Risk from Roads/Traffic

Impacts from Scenario 5.5 and Scenario 6 would be the same as described in the SSA. Implementation of staff's proposed Conditions of Certification **BIO-8** (most recent staff revisions as identified in the preface) would reduce impacts to less-than-significant levels under CEQA.

Impacts of Evaporation Ponds

Impacts from Scenario 5.5 and Scenario 6 would be the same as described in the SSA. Implementation of staff's proposed Conditions of Certification **BIO-27** (most recent staff revisions as identified in the preface) would reduce the ponds' adverse effects to less-than-significant levels under CEQA.

Noise Impacts

Impacts from Scenario 5.5 and Scenario 6 would be the same as described in the SSA. However, by locating the project further from the Cady Mountains noise impacts to species that occur in these areas would be reduced.

Implementation of staff's proposed Conditions of Certification **BIO-17** (most recent staff revisions as identified in the preface) would reduce impacts to less-than-significant levels under CEQA.

Bird Collisions and Electrocution

Impacts from Scenario 5.5 and Scenario 6 would be the same as described in the SSA. However, potential collision and electrocution impacts would be reduced due to the 26-32 percent decrease in project size for each Scenario respectively.

Implementation of staff's proposed Conditions of Certification **BIO-8** and **BIO-22** (most recent staff revisions as identified in the preface) would reduce impacts to less-than-significant levels under CEQA.

Glare

Impacts from Scenario 5.5 and Scenario 6 would be the same as described in the SSA. However, impacts would be reduced due to the 26-32 percent decrease in project size for each Scenario respectively.

Implementation of staff's proposed Conditions of Certification **BIO-8** and **BIO-22** (most recent staff revisions as identified in the preface) would reduce impacts to less-than-significant levels under CEQA.

Lighting

Impacts from Scenario 5.5 and Scenario 6 would be the same as described in the SSA. However, impacts would be reduced due to the 26-32 percent decrease in project size for each Scenario respectively.

Implementation of staff's proposed Conditions of Certification **VIS-2** would reduce impacts to less-than-significant levels under CEQA.

C.2.5 REDUCED ACREAGE ALTERNATIVE

The SSA analyzed a Reduced Acreage Alternative which would essentially be a 275-MW solar facility located within the central portion of the proposed project. Scenarios 5.5 and 6 as analyzed here would not affect that analysis or its conclusions. This addendum does not provide new description or analysis of the Reduced Acreage Alternative.

C.2.5.1 SETTING AND EXISTING CONDITIONS

Setting and Existing Conditions of the Reduced Acreage Alternative as described in the SSA would not be affected under Scenarios 5.5 or 6.

C.2.5.2 ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

Assessment of impacts and discussion of mitigation of the Reduced Acreage Alternative as described in the SSA would not be affected under Scenarios 5.5 or 6.

C.2.5.3 CEQA LEVEL OF SIGNIFICANCE

Staff's conclusions of significance for the Reduced Acreage Alternative as described in the SSA would not be affected under Scenarios 5.5 or 6.

C.2.6 NO PROJECT / NO ACTION ALTERNATIVE

Three No Project / No Action Alternatives were evaluated in the SSA (below). Scenarios 5.5 and 6 as analyzed here would not affect that analysis or its conclusions. This addendum does not provide new description or analysis of the No Project / No Action Alternatives.

C.2.7 PROJECT-RELATED FUTURE ACTIONS – BIOLOGICAL RESOURCES

The potential impacts of future transmission line construction, line removal, substation expansion, and other upgrades that may be required by Southern California Edison Company (SCE) as a result of the Calico Solar Project are analyzed in the SSA. Scenarios 5.5 and 6 as analyzed here would not affect potential impacts of future transmission line upgrades on biological resources. The SCE upgrades remain a reasonably foreseeable event under Scenario 5.5 or 6. This addendum does not provide new description or analysis of that action.

C.2.8 CUMULATIVE IMPACT ANALYSIS

C.2.8.1 CEQA AND NEPA DEFINITIONS

A cumulative impact analysis is required under both CEQA and NEPA. Applicable definitions of "cumulative impact" and staff's approach to the cumulative effects analysis are provided in the SSA. This analysis of Scenarios 5.5 and 6 uses the same definitions and methods.

C.2.8.2 GEOGRAPHIC SCOPE

The SSA describes staff's regional evaluation of the impacts of existing and reasonably foreseeable future projects. This analysis of Scenarios 5.5 and 6 uses the same geographic scope.

C.2.8.3 REGIONAL OVERVIEW

The SSA presents an overview of regional impacts. This analysis of Scenarios 5.5 and 6 is based on that overview.

C.2.8.4 MAKING CONCLUSIONS ABOUT THE SEVERITY OR SIGNIFICANCE OF THE EFFECT

The SSA presents a discussion of significance criteria in its analysis of cumulative impacts. Those criteria and rationale are applied in this analysis of Scenarios 5.5 and 6.

C.2.8.5 ANALYTIC TOOLS AND STUDY LIMITATIONS

The SSA describes quantitative and qualitative analytical methods, including their relative benefits and limitations, for cumulative impacts analysis. That description is applicable to this analysis of Scenarios 5.5 and 6.

C.2.8.6 PROJECTS CONTRIBUTING TO CUMULATIVE EFFECTS TO BIOLOGICAL RESOURCES

The SSA presents a list of the projects considered in its analysis of cumulative impacts. This analysis of Scenarios 5.5 and 6 is based on the same list. See also **Biological Resources Table 9** and **Biological Resources Figures 8** and **9** in the SSA.

C.2.8.7 ANALYSIS OF CUMULATIVE EFFECTS TO BIOLOGICAL RESOURCES

Waters of the State

The geographic scope, data sources, and limitations of those data, used for the analysis of cumulative impacts to waters of the State are described in the SSA. The SSA provides summary data for direct loss of desert washes of past, present and anticipated future projects within the Newberry Springs watershed. These effects are also illustrated spatially in **Biological Resources Figure 10** (in the SSA)**.** The contribution of the project to cumulative effects from future projects is provided as the sum of all drainages within the project boundaries.

In the SSA, staff concluded that the cumulative effects to the Newberry Springs watershed streams of future projects would be significant and that, absent mitigation, the project's contribution to those effects would be considerable. Staff further concluded that with proposed Condition of Certification **BIO-26** the project's impacts on waters of the state would not be cumulatively considerable. Scenarios 5.5 and 6 would have reduced impacts to waters of the state. Staff concludes that with proposed Condition of Certification **BIO-26**, either Scenario's impacts on waters of the state would not be cumulatively considerable.

Special-Status Wildlife

Desert Tortoise

The proposed project's cumulative impacts to desert tortoise are analyzed in the SSA. That analysis remains applicable for Scenarios 5.5 and 6, though both scenarios would have reduced impacts to desert tortoise. In the SSA, staff concluded that, with implementation of on-site protection measures and off-site compensation, the project's contribution to significant cumulative effects to desert tortoise will be less than significant when the incremental effects of the project, after mitigation, are viewed in connection with the effects of other projects; therefore the project's impacts desert tortoise are not cumulatively considerable. Staff's proposed desert tortoise-specific conditions of certification (**BIO-15** through **BIO-17**) and general avoidance and minimization measures (**BIO-1** through **BIO-9**) would reduce the project's direct effects to desert tortoise during construction and operation to a level less than significant. In addition, staff's proposed Condition of Certification **BIO-18** would require a contribution to region-wide raven monitoring and control plan to reduce the cumulative effects of this and other projects throughout the range of the desert tortoise. Staff concludes that, with implementation of these conditions of certification, Scenarios 5.5 or 6 contribution to cumulative impacts to desert tortoise would not be considerable because Staff's proposed mitigation would require the applicant to relocate all tortoises from the project area; prevent future on-site impacts to tortoises by fencing the site; monitor and manage raven predation on-site and contribute to regional raven management; and compensate for habitat loss by protecting extensive acreage now presently under conservation management.

Golden Eagle

The proposed project's cumulative impacts to golden eagle are analyzed in the SSA. That analysis remains applicable for Scenarios 5.5 and 6, though both scenarios would have reduced impacts to golden eagle.

The overall loss of foraging habitat for golden eagles within the region is a cumulatively significant impact. The contribution of Scenarios 5.5 and 6 to this cumulative effect, however, would be less than significant when the incremental effects, after mitigation, are viewed in connection with the effects of other projects; therefore either scenario's impacts would not be cumulatively considerable. Condition of Certification **BIO-20** requires focused nest surveys within 1 mile of project activities and if nests are identified, the project owner would establish a disturbance-free buffer around the nest. No construction activities would be authorized within the 0.5-mile buffer pending the successful fledging of the nest. Implementation of staff's proposed Condition of Certification **BIO-17**, the compensatory mitigation plan for desert tortoise, would offset foraging habitat loss by the preservation of similar plant communities.

Burrowing Owl

The proposed project's cumulative impacts to burrowing owl are analyzed in the SSA. That analysis remains applicable for Scenarios 5.5 and 6, though both scenarios would have reduced impacts to burrowing owl.

Cumulatively, impacts to burrowing owl populations in the Mojave Desert area would be significant, and the contribution of Scenario 5.5 or 6 to these cumulative effects would be cumulatively considerable without appropriate mitigation. Staff concludes, however, that either scenario's contribution to significant cumulative effects will be less than significant when the incremental effects of the project, after mitigation, are viewed in connection with the effects of other projects. The incremental contribution to the cumulative effects will not be cumulatively considerable because of required avoidance and passive relocation in staff's proposed Condition of Certification **BIO-21** and implementation of staff's proposed Condition of Certification **BIO-17**, the compensatory mitigation plan for desert tortoise, which will also benefit burrowing owls. The acquisition is expected to prevent future losses of habitat by permanently protecting more habitat lands than are being used for the project and further benefit the species by providing funding for long-term maintenance and management activities on those lands.

Le Conte's Thrasher

The proposed project's cumulative impacts to Le Conte's thrasher are analyzed in the SSA. That analysis remains applicable for Scenarios 5.5 and 6, though both scenarios would have reduced impacts to Le Conte's thrasher.

Cumulatively, impacts to Le Conte's thrasher in the Mojave Desert would be significant, and the project's contribution to these cumulative effects would be cumulatively considerable without project mitigation, given the threats to this species from future developments. Staff concludes, however, that the contribution of Scenarios 5.5 or 6 to cumulative effects will be less than significant when the incremental effects of the project, after mitigation, are viewed in connection with the effects of other projects. The incremental contribution to the cumulative effects will not be cumulatively considerable

because of mitigation measures requiring pre-construction breeding bird surveys and avoidance of active nests, in staff's proposed Condition of Certification **BIO-19**. In addition, implementation of staff's proposed Condition of Certification **BIO-17**, the compensatory mitigation plan for desert tortoise, would reduce the impacts of habitat loss by the preservation of suitable habitat for the species.

Migratory Birds

The proposed project's cumulative impacts to migratory birds are analyzed in the SSA. That analysis remains applicable for Scenarios 5.5 and 6, though both scenarios would have reduced impacts to migratory birds.

Cumulatively, impacts to migratory bird populations in the Mojave Desert area would be will be significant, and the contribution of Scenarios 5.5 or 6 to these cumulative effects would be cumulatively considerable without project mitigation. Either scenario's contribution to these cumulative effects will be less than significant when the incremental effects of the project, after mitigation, are viewed in connection with the effects of other projects. The incremental contribution to the cumulative effects will not be cumulatively considerable due to mitigation measures requiring pre-construction breeding bird surveys and avoidance of active nests, in staff's proposed Condition of Certification **BIO-19**. In addition, implementation of staff's proposed Condition of Certification **BIO-17**, the compensatory mitigation plan for desert tortoise, and Condition of Certification **BIO-26**, avoidance, minimization, and compensation for impacts to desert washes would reduce the impacts to migratory birds from habitat loss by the preservation of similar plant communities. The implementation of Condition of Certification **BIO-22,** the avian protection would further reduce impacts to migratory birds from solar technology.

Mojave Fringe-Toed Lizard

The proposed project's cumulative impacts to Mojave fringe-toed lizard are analyzed in the SSA. Staff revises that analysis here in consideration of the setback along the BNSF railroad line recommended as Condition of Certification **TRANS-7** in the SSA, Part II.

Natural history, distribution, and conservation status of the Mojave fringe-toed lizard is described in the SSA. Threats to the lizard include population fragmentation from land use changes in several portions of its current and former range, especially along the Mojave River. Staff has proposed mitigation to offset the expected habitat loss that would occur from the development of the Calico Solar Project. This includes Condition of Certification **BIO-13** which requires the acquisition of suitable dune/sand habitat. While this mitigation would reduce the proposed project's impacts below a level of significance, a residual adverse impact remains, including a net loss of habitat and interruption of suitable east-west movement habitat. Similarly, even with Condition of Certification **BIO-13**, Scenarios 5.5 or 6 would have a residual unmitigated interruption of suitable east-west movement habitat. In the SSA, staff concluded that the project's impacts to Mojave fringe-toed lizard would contribute considerably to the overall significant cumulative effect. However, staff's recommended Condition of Certification **TRANS-7** would require a 223-foot setback between the project's boundaries and the BNSF railroad right of way and Interstate-40. This setback would provide a suitable movement corridor for Mojave fringe-toed lizards east and west through the project site.

Therefore staff now concludes that the contribution of Scenario 5.5 or 6 to cumulative impacts to Mojave fringe-toed lizard would not be considerable and the project would not have cumulative significant impacts to this species.

Nelson's Bighorn Sheep

The proposed project's cumulative impacts to Nelson's bighorn sheep are analyzed in the SSA. That analysis remains applicable for Scenarios 5.5 and 6, though both scenarios would have reduced impacts to Nelson's bighorn sheep.

Scenarios 5.5 or 6 would not contribute significantly to the loss of bighorn sheep habitat, as most occupied habitat for Nelson's bighorn sheep within the Cady Mountains does not overlap the northern portion of either scenario's development area. Further, while intermountain movement of sheep is poorly understood, either scenario would avoid large open areas located on the bajada below the Cady Mountains that could provide connectivity to adjacent mountain ranges. Therefore, impacts of either scenario on bighorn sheep are not cumulatively considerable.

American Badger and Desert Kit Fox

The proposed project's cumulative impacts to American badger and desert kit fox are analyzed in the SSA. That analysis remains applicable for Scenarios 5.5 and 6, though both scenarios would have reduced impacts to American badger and desert kit fox.

Cumulatively, impacts to American badger and desert kit fox populations in the Mojave Desert area will be significant, and the contribution of Scenario 5.5 or 6 to these cumulative effects would be significant without project mitigation measures, given the threats to these species from future developments. The incremental contribution to the significant cumulative effects will be less than significant, however, when the incremental effects, after mitigation, are viewed in connection with the effects of other projects. Avoidance and minimization measures in staff's proposed Condition of Certification **BIO-24** combined with Condition of Certification **BIO-17**, the compensatory mitigation plan for desert tortoise, will reduce the impacts of habitat loss by the preservation of habitat for other species.

Bats

The proposed project's cumulative impacts to bats are analyzed in the SSA. That analysis remains applicable for Scenarios 5.5 and 6, though both scenarios would have reduced impacts to bats.

Cumulatively, impacts to bat populations in the Mojave Desert area would be significant, and the contribution of Scenario 5.5 or 6 to these cumulative effects would be significant given the threats to these species from future developments, without project mitigation measures. The incremental contribution to the significant cumulative effects will be less than significant, however, when the incremental effects, after mitigation, are viewed in connection with the effects of other projects. Either scenario's contribution to these cumulative effects would not be cumulatively considerable due to avoidance and minimization measures in staff's proposed Condition of Certification **BIO-25**. In addition, implementation of staff's proposed Condition of Certification **BIO-17**, the compensatory mitigation for desert tortoise, would reduce the impacts of habitat loss by the

preservation of similar habitat to that which is being lost. The implementation of Condition of Certification **BIO-22,** the avian and bat protection would further reduce impacts to migratory birds from solar technology.

Wildlife Movement and Connectivity

The proposed project's cumulative impacts to wildlife movement and connectivity are analyzed in the SSA. That analysis remains applicable for Scenarios 5.5 and 6, though both scenarios would have reduced impacts to wildlife movement and connectivity.

Cumulatively, impacts to corridors in the Mojave Desert area would be significant. Either scenario's contribution to cumulative impacts would be minimized and considered less than significant. Staff concludes that, the project's incremental contribution to cumulative impacts will not be cumulatively considerable.

Plant Communities

The geographic scope, the approach to the analysis of cumulative effects on plant communities and general wildlife habitat, and data sources used in the analysis are described in the SSA. Plant communities of the Mojave Desert are briefly described and summarized in the SSA and listed in **Biological Resources Table 15**. Creosote bush scrub and saltbush scrub are the most common. That analysis remains applicable for Scenarios 5.5 and 6, though both scenarios would have reduced impacts to plant communities.

Foreseeable future projects would have significant cumulative effects to plant communities in the Mojave Desert. Either scenario would contribute at least incrementally to the cumulative impacts of future projects to Mojave creosote scrub and saltbush scrub. Either scenario's contribution to these effects would not be cumulatively considerable because the incremental effects would be reduced by the compensatory mitigation of desert tortoise habitat; implementation of Best Management Practices for minimizing construction impacts; and specifications for restoring temporarily disturbed habitat.

Special-Status Plants

White-margined beardtongue

White-margined beardtongue natural history and conservation status is described in the SSA. In California, most known occurrences are within the BLM Pisgah ACEC southeast of the project site. Cumulative impacts to California beardtongue are evaluated here in terms of the project's potential impacts to the regional population. If significant, adverse cumulative impacts to the regional population would also be significant in the broader context of all three known populations.

Scenarios 5.5 and 6 as analyzed here would avoid direct impacts to white-margined beardtongue and its occupied habitat. Potential indirect off-site impacts to white-margined beardtongue populations within the BLM Pisgah ACEC are analyzed in the SSA. Cumulative effects of foreseeable future projects to the California population would be significant. Absent mitigation the project's contribution to cumulative effects to white-margined beardtongue would be cumulatively considerable, particularly in light of

the species' highly restricted range in California. However, these significant incremental contributions to the cumulative effects will be minimized to a level less than significant when viewed in connection with the impacts of other projects. Areas within the project boundary that contain the plant will be avoided and protected within Environmentally Sensitive Areas. Further, and measures to avoid or minimize off-site impacts to the BLM Pisgah Crater ACEC, are required in staff's proposed Condition of Certification **BIO-12.**

Other Special-Status Plants

The SSA concluded that the cumulative effects of foreseeable projects to special status plants of the region are significant and that, absent mitigation, the proposed 6,215-acre project would have a considerable contribution to this effect. The SSA further concluded that the project's contribution to cumulative effects would be minimized to a level less than significant with staff's proposed Condition of Certification **BIO-12**. Scenarios 5.5 and 6 as analyzed in this addendum would have similar effects to special status plants. Staff concludes that proposed Condition of Certification **BIO-12** would reduce these impacts below a level of significance.

C.2.8.8 CUMULATIVE IMPACTS ANALYSIS CONCLUSION

The incremental contribution of Scenarios 5.5 or 6 to cumulatively significant impacts to biological resources would be mitigated to a level less than significant when viewed in connection with the impacts of other projects, as described above, including avoidance, minimization, and compensation, detailed monitoring, reporting requirements, and funding mechanisms to ensure implementation and accountability, as described in staff's recommended Conditions of Certification **BIO-1** through **BIO-30**.

C.2.9 COMPLIANCE WITH LORS

The discussion of compliance with State and federal laws, ordinances, regulations, and standards (LORS) is presented in the SSA. Scenarios 5.5 and 6 as addressed in this addendum would not affect staff's conclusion that either scenario, with staff's recommended conditions of certification would comply with applicable LORS. See **Biological Resources Table 16** of the SSA for a summary of the proposed project's compliance with federal, State, and local LORS.

C.2.10 Noteworthy public benefits

The Calico Solar Project and the proposed alternatives would result in significant impacts to sensitive biological resources, and would permanently diminish the extent and value of native plant and animal communities in the region. Staff has therefore concluded that the Calico Solar Project would not provide any noteworthy public benefits related to biological resources, despite the contributions the project would make to meeting federal and State mandates for development of renewable energy resources.

C.2.11 FACILITY CLOSURE

Facility closure for the proposed project is addressed in the SSA. Implementation of Scenarios 5.5 or 6 would not affect the discussion presented in the SSA.

Staff's proposed Conditions of Certification **BIO-7, BIO-28** and **BIO-29** contain measures to ensure that impacts to biological resources are addressed prior to the planned permanent or unexpected permanent closure of the project.

C.2.12 RESPONSE TO PUBLIC AND AGENCY COMMENTS

Staff received comments on the Biological Resources section of the SA/DEIS and provided responses to those comments in the SSA. No revisions or new responses to comments are presented in this addendum.

C.2.13 STAFF'S PROPOSED CONDITIONS OF CERTIFICATION/MITIGATION MEASURES

Implementation of Scenarios 5.5 or Scenario 6 would require the same Conditions of Certification presented in the SSA. With implementation of staff's proposed conditions of certification, construction and operation of the Calico Solar Project would comply with all federal, State, and local laws, ordinances, regulations, and standards relating to biological resources. Staff recommends adoption of the following conditions of certification to mitigate potential impacts to sensitive biological resources to less-than-significant levels under CEQA and to satisfy mitigation requirements of other relevant laws. However, some of the Conditions of Certification were revised in response to a reduction in the scale of the proposed Scenarios, Applicant-proposed revisions to staffs Conditions of Certification, and the request to phase mitigation payments. Only those measures that have been extensively revised are included below. These include revisions to staff's recommended Conditions of Certification **BIO-12** (Special-status Plant Impact Avoidance and Minimization), **BIO-13** (Mojave Fringe-toed Lizard Mitigation), **BIO-15** (Desert Tortoise Clearance Surveys And Exclusion Fencing), **BIO-16** (Desert Tortoise Translocation Plan), **BIO-17** (Desert Tortoise Compensatory Mitigation), **BIO-18** (Raven Monitoring, Management and Control Plan), **BIO-21** (Burrowing Owl Impact Avoidance and Minimization Measures), **BIO-22** (Avian Protection Plan/Monitoring Bird Impacts From Solar Technology), **BIO-26** (Streambed Impact Minimization and Compensation Measures), and **BIO-31** (Project Construction Compensation and Phasing Plan).

DESIGNATED BIOLOGIST SELECTION[1]

BIO-1 Staff recommends adopting Condition of Certification **BIO-1** as provided in the SSA.

DESIGNATED BIOLOGIST DUTIES

BIO-2 Staff recommends adopting Condition of Certification **BIO-2** as provided in the SSA.

BIOLOGICAL MONITOR QUALIFICATIONS

BIO-3 Staff recommends adopting Condition of Certification **BIO-3** as provided in the SSA.

BIOLOGICAL MONITOR DUTIES

BIO-4 Staff recommends adopting Condition of Certification **BIO-4** as provided in the SSA.

DESIGNATED BIOLOGIST AND BIOLOGICAL MONITOR AUTHORITY

BIO-5 Staff recommends adopting Condition of Certification **BIO-5** as provided in the SSA.

WORKER ENVIRONMENTAL AWARENESS PROGRAM (WEAP)

BIO-6 Staff recommends adopting Condition of Certification **BIO-6** as provided in the SSA, with additional railroad safety training as proposed by the applicant and BNSF during the Evidentiary Hearing on August 25, 2010.

BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION AND MONITORING PLAN

BIO-7 Staff recommends adopting Condition of Certification **BIO-7** as provided in the SSA with the minor changes proposed by the applicant during the Evidentiary Hearing on August 25, 2010.

IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-8 Staff recommends adopting Condition of Certification **BIO-8** as provided in staff's Second Errata to Supplemental to the SSA (August 17, 2010).

COMPLIANCE VERIFICATION

BIO-9 Staff recommends adopting Condition of Certification **BIO-9** as provided in the SSA.

REVEGETATION PLAN AND COMPENSATION FOR IMPACTS TO NATIVE VEGETATION COMMUNITIES

BIO-10 Staff recommends adopting Condition of Certification **BIO-10** as provided in staff's Second Errata to Supplemental to the SSA (August 17, 2010).

WEED MANAGEMENT PLAN

BIO-11 Staff recommends adopting Condition of Certification **BIO-11** as provided in the SSA.

SPECIAL-STATUS PLANT IMPACT AVOIDANCE AND MINIMIZATION

BIO-12 Staff recommends adopting Condition of Certification **BIO-12** as provided in the Additional Staff Revisions Regarding Biological Conditions (August 27, 2010).

MOJAVE FRINGE-TOED LIZARD MITIGATION

BIO-13 Staff recommends adopting Condition of Certification **BIO-13** as provided in the Additional Staff Revisions Regarding Biological Conditions (August 27, 2010).

GILA MONSTER MITIGATION

BIO-14 Staff recommends adopting Condition of Certification **BIO-14** as provided in the SSA.

DESERT TORTOISE CLEARANCE SURVEYS AND EXCLUSION FENCING

BIO-15 Staff recommends adopting Condition of Certification **BIO-15** as provided in staff's Second Errata to Supplemental to the SSA (August 17, 2010) with the minor changes proposed by the applicant and BNSF during the Evidentiary Hearing on August 25, 2010.

DESERT TORTOISE TRANSLOCATION PLAN

BIO-16 Staff recommends adopting Condition of Certification **BIO-16** as provided in staff's Second Errata to Supplemental to the SSA (August 17, 2010).

DESERT TORTOISE COMPENSATORY MITIGATION

BIO-17 If Scenario 6 is adopted, t~~T~~he project owner shall provide compensatory mitigation acreage of ~~18,761~~ 8,452 acres of desert tortoise habitat lands, adjusted to reflect the final project footprint, as specified in this condition. If Scenario 5.5 is adopted, the project owner shall provide compensatory mitigation acreage of 10,302 acres of desert tortoise habitat lands, adjusted to reflect the final project footprint, as specified in this condition. In addition, the project owner shall provide funding for initial improvement and long-term maintenance, enhancement, and management of the acquired lands for protection and enhancement of desert tortoise populations, and comply with other related requirements of this condition. This acreage was calculated as follows: a ratio of 1:1 for the project area south of the BNSF railroad tracks (2,140 acres); a ratio of 3:1 ratio for ~~1,877~~ 2,104 acres of the project area ~~within Phase 1b contiguous to the BNSF~~ north of the BNSF railroad tracks; and (for Scenario 5.5 only) a ratio of 5:1 ~~on 2,198~~ for 370 additional acres ~~of the project area that include the northern (disjunct) portions of Phase 1b and all of Phase 2 that is~~ north of the BNSF railroad tracks. See **~~Revised~~ Biological Resources Addendum Table 8 ~~18~~**, below.

~~Revised Biological Resources Table 18~~

~~**Desert Tortoise Compensation Acreage Summary**~~

~~Location~~	~~Project Impact Acreage~~	~~Mitigation Ratio~~	~~Compensation Acreage~~
~~South of BNSF RR~~	~~2,140 acres~~	~~1:1~~	~~2,140 acres~~
~~North of BNSF RR (southern Phase 1b acreage)~~	~~1,877 acres~~	~~3:1~~	~~5,631 acres~~
~~North of BNSF RR (northern Phase 1b and Phase 2 areas)~~	~~2,198 acres~~	~~5:1~~	~~10,990 acres~~
~~Total~~	~~6,215 acres~~		~~18,761 acres~~

Biological Resources Addendum Table 8
Desert Tortoise Compensation Acreage Summary:
Scenarios 5.5 and 6

Location	Project Impact Acreage	Mitigation Ratio	Compensation Acreage
South of BNSF RR	2,140 acres	1:1	2,140 acres
North of BNSF RR (southern Phase 1b acreage)	2.104 acres	3:1	6,312 acres
Scenario 6 Total	**4,244 acres**		**8,452 acres**
North of BNSF RR (northern Phase 2 area, Scenario 5.5 only)	370 acres	5:1	1,850 acres
Scenario 5.5 Total	**4,614 acres**		**10,302 acres**

Costs of these requirements are estimated to be $31,079,934.00 for Scenario 5.5 or $25,545,484.00 for Scenario 6 ~~$58,935,480.00 based on the acquisition of 18,761 acres~~ (see ~~**Revised**~~ **Biological Resources Addendum Tables 5** and **7** (attached) for a complete breakdown of costs and acreage).

As many as ~~6,215~~ 4,614 acres (Scenario 5.5) or 4,244 acres (Scenario 6) of the compensation lands requirement may be satisfied by applicant's compliance with the desert tortoise habitat acquisition or enhancement requirements of BLM, to be calculated as an acre-for-acre offset in the Energy Commission requirement for mitigation provided to satisfy BLM's requirements. For purposes of this paragraph, credit will be given for BLM-required mitigation without regard to whether BLM uses the mitigation funds for habitat acquisition or for enhancement projects to benefit the species.

These impact acreages shall be adjusted to reflect the final project footprint. For purposes of this condition, the Project footprint means all lands disturbed in the construction and operation of the Calico Solar Project, including all

linear project components, as well as all undeveloped areas inside the Project's boundaries.

The project owner shall provide financial assurances as described below in the amount of $31,079,934.00 for Scenario 5.5 or $25,545,484.00 for Scenario 6 ~~$58,935,480.00~~. In lieu of acquiring lands itself, the Project owner may satisfy the requirements of this condition by depositing funds into a Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as described below. If the Project owner elects to establish a REAT NFWF Account and have NFWF and the agencies complete the required habitat compensation, then the total estimated cost of complying with this condition is $31,755,574.02 for Scenario 5.5 or $26,108,740.52 for Scenario 6 ~~$60,201,474.90~~. The amount of security or NFWF deposit shall be adjusted up or down to reflect any revised cost estimates recommended by REAT.

The actual costs to comply with this condition will vary depending on the final footprint of the Project, the costs of acquiring compensation habitat, the costs of initially improving the habitat, and the actual costs of long-term management as determined by a Property Analysis Report or similar analysis (below). The 4.614 (Scenario 5.5) or 4,244 (Scenario 6) ~~18,761~~ acre habitat requirement, and associated funding requirements based on that acreage, shall be adjusted up or down if there are changes in the final footprint of the project or the associated costs of evaluation, acquisition, management, and other factors listed in ~~**Revised**~~ **Biological Resources Addendum Tables 5** and **7**. Regardless of actual cost, the project owner shall be responsible for funding all requirements of this condition.

COMPENSATORY MITIGATION LAND ACQUISITION

1. Method of Acquisition. Compensation lands shall be acquired by either of the two options listed below. Regardless of the method of acquisition, the transaction shall be complete only upon completion of all terms and conditions described in this Condition of Certification.

a. The project owner shall acquire lands and transfer title and/or conservation easement to a state or federal land management agency or to a third-party non-profit land management organization, as approved by the CPM in consultation with BLM, CDFG, and USFWS; or

b. The Project owner shall deposit funds into a project-specific subaccount within the REAT Account established with the NFWF, in the amount as indicated in ~~**Revised**~~ **Biological Resources Addendum Tables 5** and **7** (adjusted to reflect final project footprint and any applicable REAT adjustments to costs).

2. Selection Criteria for Compensation Lands. The compensation lands selected for acquisition to meet Energy Commission and CESA

requirements shall be equal to or better than the quality and function of the habitat impacted and:

a. be within the Western Mojave Recovery Unit, with potential to contribute to desert tortoise habitat connectivity and build linkages between desert tortoise designated critical habitat, known populations of desert tortoise, and/or other preserve lands;

b. provide habitat for desert tortoise with capacity to regenerate naturally when disturbances are removed;

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

d. be contiguous and biologically connected to lands currently occupied by desert tortoise, ideally with populations that are stable, recovering, or likely to recover;

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

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

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

h. have water and mineral rights included as part of the acquisition, unless the CPM, in consultation with CDFG, BLM and USFWS, agrees in writing to the acceptability of land without these rights.

3. Review and Approval of Compensation Lands Prior to Acquisition. The project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for desert tortoise in relation to the criteria listed above and must be approved by the CPM. The CPM will share the proposal with and consult with CDFG, BLM and the USFWS before deciding whether to approve or disapprove the proposed acquisition.

4. Compensation Lands Acquisition Conditions: The project owner shall comply with the following conditions relating to acquisition of the compensation lands after the CPM, in consultation with CDFG, BLM and the USFWS have approved the proposed compensation lands:

   a. Preliminary Report: The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM, in consultation with CDFG, BLM and the

USFWS. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.

b. Title/Conveyance: The Project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as required by the CPM in consultation with CDFG. Any transfer of a conservation easement or fee title must be to CDFG, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to BLM or other public agency approved by the CPM in consultation with CDFG. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of CDFG or another entity approved by the CPM. If an approved non-profit holds a conservation easement, CDFG shall be named a third party beneficiary. If an entity other than CDFG holds a conservation easement over the compensation lands, the CPM may require that CDFG or another entity approved by the CPM, in consultation with CDFG, be named a third party beneficiary of the conservation easement. The Project owner shall obtain approval of the CPM, in consultation with CDFG, of the terms of any transfer of fee title or conservation easement to the compensation lands.

c. Property Analysis Record. Upon identification of the compensation lands, the Project owner shall conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate amount of the long-term maintenance and management fund to pay the in-perpetuity management of the compensation lands. The PAR or PAR-like analysis must be approved by the CPM, in consultation with CDFG, before it can be used to establish funding levels or management activities for the compensation lands.

5. Compensation Lands Acquisition Costs: The Project owner shall pay all other costs related to acquisition of compensation lands and conservation easements. In addition to actual land costs, these acquisition costs shall include but shall not be limited to the items listed below. Management costs including site cleanup measures are described separately, in the following section.

a. Level 1 Environmental Site Assessment;

b. Appraisal;

c. Title and document review costs;

d. Expenses incurred from other state, federal, or local agency reviews;

e. Closing and escrow costs;

f. Overhead costs related to providing compensation lands to CDFG or an approved third party;

g. Biological survey(s) to determine mitigation value of the land; and

h. Agency costs to accept the land (e.g., writing and recording of conservation easements; title transfer).

COMPENSATORY MITIGATION LAND IMPROVEMENT

1. Land Improvement Requirements: The Project owner shall fund activities that the CPM, in consultation with the CDFG, USFWS and BLM, requires for the initial protection and habitat improvement of the compensation lands. These activities will vary depending on the condition and location of the land acquired, but may include surveys of boundaries and property lines, installation of signs, trash removal and other site cleanup measures, construction and repair of fences, invasive plant removal, removal of roads, and similar measures to protect habitat and improve habitat quality on the compensation lands.

   The costs of these activities are estimated at $250 an acre, but will vary depending on the measures that are required for the compensation lands. A non-profit organization, CDFG or another public agency may hold and expend the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to California Government Code section 65965), if it meets the approval of the CPM in consultation with CDFG, and if it is authorized to participate in implementing the required activities on the compensation lands. If CDFG takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFG or its designee.

COMPENSATORY MITIGATION LAND LONG-TERM MANAGEMENT

1. Long-term Management Requirements: Long-term management is required to ensure that the compensation lands are managed and maintained to protect and enhance habitat for desert tortoise. Management activities may include maintenance of signs, fences, removal of invasive weeds, monitoring, security and enforcement, and control or elimination of unauthorized use.

2. Long-term Management Plan. The project owner shall pay for the preparation of a Management Plan for the compensation lands. The Management Plan shall reflect site-specific enhancement measures on the acquired compensation lands. The plan shall be submitted for approval of the CPM, in consultation with CDFG, BLM and USFWS.

3. Long-Term Maintenance and Management Funding. The Project owner shall provide money to establish an account with a non-wasting capital that will be used to fund the long-term maintenance and management of the compensation lands. The amount of money to be paid will be determined through an approved PAR or PAR-like analysis conducted for the compensation lands. The amount of required funding is initially estimated to be $1,450 for every acre of compensation lands. If compensation lands will not be identified and a PAR or PAR-like analysis completed within the time period specified for this payment (see the

verification section at the end of this condition), the Project owner shall provide initial payment of ~~$27,203,450.00~~ $14,937,900.00 (Scenario 5.5) or $12,255,400.00 (Scenario 6) calculated at $1,450 an acre for each compensation acre, as shown in **Biological Resources Addendum Tables 5 and 7** (above) ~~for 18,761acres~~ into an account for long-term maintenance and management of compensation lands. The amount of the required initial payment or security for this item shall be adjusted for any change in the Project footprint as described above. If an initial payment is made based on the estimated per-acre costs, the project owner shall deposit additional money as may be needed to provide the full amount of long-term maintenance and management funding indicated by a PAR or PAR-like analysis, once the analysis is completed and approved. If the approved analysis indicates less than $1,450 an acre will be required for long-term maintenance and management, the excess paid will be returned to the Project owner.

The project owner must obtain the CPM's approval of the entity that will receive and hold the long-term maintenance and management fund for the compensation lands. The CPM will consult with the project owner and CDFG before deciding whether to approve an entity to hold the project's long-term maintenance and management funds on any lands. The CPM, in consultation with the project owner and CDFG, may designate another state agency or non-profit organization to hold the long-term maintenance and management fee if the organization is qualified to manage the compensation lands in perpetuity.

If CDFG takes fee title to the compensation lands, CDFG shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity to manage the long-term maintenance and management fee for CDFG and with CDFG supervision.

The Project owner shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions:

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

ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM, in consultation with CDFG, or the approved third-party long-term maintenance and management fee manager to ensure the continued viability of the species on the compensation lands. If CDFG takes fee title to the compensation lands, monies received by CDFG pursuant to this provision shall be deposited in a special deposit

fund established solely for the purpose to manage lands in perpetuity unless CDFG designates NFWF or another entity to manage the long-term maintenance and management fee for CDFG.

iii. Pooling Funds. A CPM- approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the fund with other funds for the operation, management, and protection of the compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the CDFG and CPM.

iv. Reimbursement Fund. The project owner shall provide reimbursement to CDFG or an approved third party for reasonable expenses incurred during title, easement, and documentation review; expenses incurred from other State or State-approved federal agency reviews; and overhead related to providing compensation lands.

COMPENSATORY MITIGATION LAND SECURITY

1. Compensation Mitigation Security: The project owner shall provide security sufficient for funding acquisition, improvement, and long-term management of desert tortoise compensation land. Financial assurance can be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security"). Prior to submitting the Security to the CPM, the Project owner shall obtain the CPM's approval, in consultation with CDFG, BLM and the USFWS, of the form of the Security.

   The security amount shall be based on the estimates provided in **~~Revised~~ Biological Resources Addendum Tables 5** and **7.** This amount shall be updated and verified prior to payment and shall be adjusted to reflect actual costs or more current estimates as agreed upon by the REAT agencies.

   The Project owner shall provide verification that financial assurances have been established to the CPM with copies of the document(s) to BLM, CDFG and the USFWS, to guarantee that an adequate level of funding is available to implement any of the mitigation measures required by this condition that are not completed prior to the start of ground-disturbing activities described in Section A of this condition.

   In the event that the project owner defaults on the Security, the CPM may use money from the Security solely for implementation of the requirements of this condition. The CPM's use of the security to implement measures in this condition may not fully satisfy the Project owner's obligations under this condition. Any amount of the Security that is not used to carry out mitigation shall be returned to the Project owner upon successful completion of the associated requirements in this condition.

Security for the requirements of this condition shall be provided in the amount of $31,079,934 (Scenario 5.5) or $25,545,484 (Scenario 6) ~~$ $58,935,480.50~~ (or (~~$60,201,474.90~~ $31,755,574.02 for Scenario 5.5 or $26,108,740.52 for Scenario 6 if the project owner elects to use the REAT Account with NFWF pursuant to paragraph 4 of this condition, below). The Security is calculated in part from the items that follow but adjusted as specified below (consult **~~Revised~~ Biological Resources Addendum Tables 5** and **7** for the complete breakdown of estimated costs). However, regardless of the amount of the security or actual cost of implementation, the project owner shall be responsible for implementing all aspects of this condition.

i. land acquisition costs for compensation land, calculated at $1,000/acre;

ii. Site assessments, appraisals, biological surveys, transaction closing and escrow costs, calculated as $18,000 total per parcel (presuming 320 acres per parcel)

iii. Initial site clean-up, restoration, or enhancement, calculated at $250/acre;

iv. Third-party and agency administrative transaction costs and overhead, calculated as percentages of land cost;

v. Long-term management and maintenance fund, calculated at $1,450 per acre;

vi. NFWF fees to establish a project-specific account; manage the sub-account for acquisition and initial site work; and manage the sub-account for long term management and maintenance.

2. Phasing of Security Payment: Compensatory Mitigation Land Security may be phased according to phasing of the project's approval and construction. Phasing of compensation funding shall be based upon land disturbance and habit impacts for each project phase. Phasing of the mitigation payment is described further in staff's recommended **Condition of Certification BIO-31** (most recent revision, below).

3. The project owner may elect to comply with some or all of the requirements in this condition by providing funds to implement the requirements into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF). To use this option, the Project owner must make an initial deposit to the REAT Account in an amount equal to the estimated costs of implementing the requirement (as set forth in the Security section of this condition, paragraph 3, above). If the actual cost of the acquisition, initial protection and habitat improvements, long-term funding or other cost is more than the estimated amount initially paid by the project owner, the project owner shall make an additional deposit into the REAT Account sufficient to cover the actual acquisition costs, the actual costs of initial protection and habitat improvement on the compensation lands, the long-term funding requirements as established in an approved PAR or PAR-like analysis, or

the other actual costs that are estimated in the table. If those actual costs or PAR projections are less than the amount initially transferred by the applicant, the remaining balance shall be returned to the project owner.

4. The responsibility for acquisition of compensation lands may be delegated to a third party other than NFWF, such as a non-governmental organization supportive of desert habitat conservation, by written agreement of the Energy Commission. Such delegation shall be subject to approval by the CPM, in consultation with CDFG, BLM and USFWS, prior to land acquisition, enhancement or management activities. Agreements to delegate land acquisition to an approved third party, or to manage compensation lands, shall be executed and implemented within 18 months of the Energy Commission's certification of the project.
5. The project owner may request the CPM to provide it with all available information about any funds held by the Energy Commission, CDFG, or NFWF as project security, or funds held in a NFWF sub-account for this project, or other project-specific account held by a third party. The CPM shall also fully cooperate with any independent audit that the project owner may choose to perform on any of these funds.

Verification: The project owner shall provide the CPM with written notice of intent to start ground disturbance at least 30 days prior to the start of ground-disturbing activities on the project site.

If the mitigation actions required under this condition are not completed at least 30 days prior to the start of ground-disturbing activities, the Project owner shall provide verification to the CPM and CDFG that an approved Security has been established in accordance with this condition of certification no later than 30 days prior to beginning Project ground-disturbing activities. Financial assurance can be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security"). Prior to submitting the Security to the CPM, the project owner shall obtain the CPM's approval, in consultation with CDFG, BLM and the USFWS, of the form of the Security. The project owner, or an approved third party, shall complete and provide written verification to the CPM, CDFG, BLM and USFWS of the compensation lands acquisition and transfer within 18 months of the start of Project ground-disturbing activities.

No later than 12 months after the start of any phase of ground-disturbing project activities, the project owner shall submit a formal acquisition proposal to the CPM describing the parcels intended for purchase, and shall obtain approval from the CPM, in consultation with CDFG, BLM and USFWS, prior to the acquisition. If NFWF or another approved third party is handling the acquisition, the project owner shall fully cooperate with the third party to ensure the proposal is submitted within this time period. The project owner or an approved third party shall complete the acquisition and all required transfers of the compensation lands, and provide written verification to the CPM, CDFG, BLM and USFWS of such completion, no later than 18 months after the issuance of the Energy Commission Decision. If NFWF or another approved third party is being used for all or part of the acquisition, the project owner shall ensure that funds

needed to accomplish the acquisition are transferred in timely manner to facilitate the planned acquisition and to ensure the land can be acquired and transferred prior to the 18-month deadline.

The project owner shall complete and submit to the CPM a PAR or PAR-like analysis no later than 60 days after the CPM approves compensation lands for acquisition associated with any phase of construction. The project owner shall fully fund the required amount for long-term maintenance and management of the compensation lands for that phase of construction no later than 30 days after the CPM approves a PAR or PAR-like analysis of the anticipated long-term maintenance and management costs of the compensation lands. Written verification shall be provided to the CPM and CDFG to confirm payment of the long-term maintenance and management funds.

No later than 60 days after the CPM determines what activities are required to provide for initial protection and habitat improvement on the compensation lands for any phase of construction, the project owner shall make funding available for those activities and provide written verification to the CPM of what funds are available and how costs will be paid. Initial protection and habitat improvement activities on the compensation lands for that phase of construction shall be completed, and written verification provided to the CPM, no later than six months after the CPM's determination of what activities are required on the compensation lands.

The project owner, or an approved third party, shall provide the CPM, CDFG, BLM and USFWS with a management plan for the compensation lands associated with any phase of construction within180 days of the land or easement purchase, as determined by the date on the title. The CPM, in consultation with CDFG, BLM and the USFWS, shall approve the management plan after its content is acceptable to the CPM.

Within 90 days after completion of all project related ground disturbance, the project owner shall provide to the CPM, CDFG, BLM and USFWS an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during Project construction. If this analysis shows that more lands were disturbed than was anticipated in this condition, the project owner shall provide the Energy Commission with additional compensation lands and funding commensurate with the added impacts and applicable mitigation ratios set forth in this condition. A final analysis of all project related ground disturbance may not result in a reduction of compensation requirements if the deadlines established under this condition for transfer of compensation lands and funding have passed prior to completion of the analysis.

RAVEN MONITORING, MANAGEMENT, AND CONTROL PLAN

BIO-18 The project owner shall design and implement a Raven Monitoring, Management, and Control Plan (Raven Plan) that is consistent with the most current USFWS-approved raven management guidelines and that meets the approval of the USFWS, CDFG, and the CPM. Any subsequent modifications to the approved Raven Plan shall be made only with approval of the CPM in consultation with USFWS and CDFG. The Raven Plan shall include but not be limited to a program to monitor increased raven presence in the Project vicinity and to implement raven control measures as needed based on that monitoring. The purpose of the plan is to avoid any Project-related increases in raven

numbers during construction, operation, and decommissioning. The threshold for implementation of raven control measures shall be any increases in raven numbers from baseline conditions, as detected by monitoring to be proposed in the Raven Plan. Regardless of raven monitoring results, the project owner shall be responsible for all other aspects of the Raven Plan, including avoidance and minimization of project-related trash, water sources, or perch/roost sites that could contribute to increased raven numbers. In addition, to offset the cumulative contributions of the Project to desert tortoise from increased raven numbers, the Project owner shall also contribute to the USFWS Regional Raven Management Program. The Project owner shall do all of the following:

1. Prepare and Implement a Raven Management Plan that includes the following:
    a. Identify conditions associated with the Project that might provide raven subsidies or attractants;
    b. Describe management practices to avoid or minimize conditions that might increase raven numbers and predatory activities;
    c. Describe control practices for ravens;
    d. Address monitoring and nest removal during construction and for the life of the Project, and;
    e. Discuss reporting requirements.
2. Contribute to the USFWS Regional Raven Management Program. The project owner shall submit payment to the project sub-account of the REAT Account held by the National Fish and Wildlife Foundation (NFWF) to support the USFWS Regional Raven Management Program. The amount shall be a one-time payment of $105 per acre of permanent disturbance and a 2% fund management fee (totaling ~~$ 665,626.50~~ $494,159.40 for Scenario 5.5 or $454,532.40 for Scenario 6). Payment may be made in phases corresponding to proposed phasing of the project described in Condition of Certification **BIO-31** (most recent revision, below).

Verification: No later than 30 days prior to the start of construction, the project owner shall provide written verification to the CPM that NFWF has received and accepted payment into the project's sub-account of the REAT Account to support the USFWS Regional Raven Management Program.

No later than 30 days prior to any construction-related ground disturbance activities, the Project owner shall provide the CPM, USFWS, and CDFG with the final version of a Raven Plan. All modifications to the approved Raven Plan shall be made only with approval of the CPM in consultation with USFWS and CDFG.

Within 30 days after completion of Project construction, the Project owner shall provide to the CPM for review and approval, a written report identifying which items of the

Raven Plan have been completed, a summary of all modifications to mitigation measures made during the Project's construction phase, and which items are still outstanding.

On January 31st of each year following construction the Designated Biologist shall provide a report to the CPM that includes: a summary of the results of raven management and control activities for the year; a discussion of whether raven control and management goals for the year were met; and recommendations for raven management activities for the upcoming year.

PRE-CONSTRUCTION NEST SURVEYS AND IMPACT AVOIDANCE MEASURES FOR MIGRATORY BIRDS

BIO-19 Staff recommends adopting Condition of Certification **BIO-19** as provided in staff's Second Errata to Supplemental to the SSA (August 17, 2010).

PRE-CONSTRUCTION SURVEYS FOR GOLDEN EAGLES

BIO-20 Staff recommends adopting Condition of Certification **BIO-20** as provided in the SSA.

BURROWING OWL IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-21 Staff recommends adopting Condition of Certification **BIO-21** as provided in the Additional Staff's Revision Regarding Biological Conditions (August 27, 2010).

AVIAN PROTECTION PLAN / MONITORING BIRD IMPACTS FROM SOLAR TECHNOLOGY

BIO-22 The project owner shall prepare and implement an Avian and Bat Protection Plan to monitor bird and bat collisions with facility features (study described below). The Project owner shall use the monitoring data to inform and develop an adaptive management program that would avoid and minimize Project-related avian and bat impacts. Project-related bird and bat deaths or injuries shall be reported to the CPM, CDFG and USFWS. The CPM, in consultation with CDFG and USFWS, shall determine if the Project-related bird or bat deaths or injuries warrant implementation of adaptive management measures contained in the Avian and Bat Protection Plan. The study design for the Avian and Bat Protection Plan shall be approved by the CPM in consultation with CDFG and USFWS, and, once approved, shall be incorporated into the project's BRMIMP and implemented. The Plan shall include adaptive management strategies that include the placement of bird flight diverters, aerial markers, or other strategies to minimize collisions with the SunCatcher units.

The Avian and Bat Protection Plan shall include a Bird Monitoring Study to monitor the death and injury of birds and bats from collisions with facility

features such as reflective mirror-like surfaces and from heat, and bright light from concentrating sunlight. The study design shall be approved by BLM's Wildlife Biologist and the CPM in consultation with CDFG and USFWS, and shall be incorporated into the project's BRMIMP and implemented. The Bird Monitoring Study shall be based upon prior studies by McCrary et al. (1986) or other applicable literature including the Region 8 Interim Guidelines for the Development of a Project-Specific Avian and Bat Protection Plan for Solar Energy Plants and Related Transmission Facilities (USFWS 2010), and shall include detailed specifications on data and carcass collection protocol and a rationale justifying the proposed schedule of carcass searches. The study shall also include seasonal trials to assess bias from carcass removal by scavengers as well as searcher bias and proposed disposition of dead or injured birds.

Verification: No more than 30 days following the publication of the Energy Commission License Decision or BLM's Record of Decision/ROW Issuance, whichever comes first, the project owner shall submit to the CPM, BLM's Wildlife Biologist, USFWS and CDFG a final Avian Protection Plan. Modifications to the Avian Protection Plan shall be made only after approval from BLM's Wildlife Biologist and the CPM.

For one year following the beginning of power plant operation, the Designated Biologist shall submit quarterly reports to BLM's Wildlife Biologist , CPM, CDFG, and USFWS describing the methods, dates, durations, and results of monitoring. The quarterly reports shall provide a detailed description of any project-related bird or wildlife deaths or injuries detected during the monitoring study or at any other time. Following the completion of the fourth quarter of monitoring the Designated Biologist shall prepare an Annual Report that summarizes the year's data, analyzes any project-related bird fatalities or injuries detected, and provides recommendations for future monitoring and any adaptive management actions needed. The Annual Report shall be provided to the CPM, BLM's Wildlife Biologist, CDFG, and USFWS. Quarterly reporting shall continue until BLM's Wildlife Biologist and the CPM, in consultation with CDFG and USFWS determine whether more years of monitoring are needed, and whether mitigation and adaptive management measures are necessary. After the Bird Monitoring Study is determined by BLM's Wildlife Biologist and the CPM to be complete, the project owner or contractor shall prepare a paper that describes the study design and monitoring results to be submitted to the CPM, BLM's Wildlife Biologist, CDFG, USFWS, and a peer-reviewed scientific journal. Proof of submittal shall be provided to BLM's Wildlife Biologist and the CPM within one year of concluding the monitoring study.

NELSON'S BIGHORN SHEEP MITIGATION

BIO-23 Staff recommends adopting Condition of Certification **BIO-23** as provided in the SSA.

AMERICAN BADGER AND DESERT KIT FOX IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-24 Staff recommends adopting Condition of Certification **BIO-24** as provided in the SSA.

BAT IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-25 Staff recommends adopting Condition of Certification **BIO-25** as provided in the SSA.

STREAMBED IMPACT MINIMIZATION AND COMPENSATION MEASURES

BIO-26 The project owner shall implement the following measures to avoid, minimize and mitigate for direct and indirect impacts to jurisdictional waters of the State and to satisfy requirements of California Fish and Game Code sections 1600 and 1607. Throughout this condition, "jurisdictional" refers to streambeds or acreages of streambed meeting CDFG criteria as waters of the State.

Section A: Acquire Off-Site State Waters.

The project owner shall acquire, in fee or in easement, a parcel or parcels of land that includes no fewer than ~~288.8 acres~~ 152.3 acres (Scenario 5.5) or 125.7 acres (Scenario 6) of State jurisdictional waters. ~~At least 9.9 acres must contain microphyll woodland.~~ Prior to construction the applicant shall map the vegetation with emphasis on desert wash, including microphyll woodland, communities within the drainages subject to project disturbance and provide a map to the CPM, CDFG and BLM. ~~Impacts to 3.3 acres of catclaw acacia or smoke tree habitat lost will be mitigated at a minimum 3:1 ratio.~~ The parcel or parcels comprising the ~~288.8 acres~~ 152.3 acres (Scenario 5.5) or 125.7 acres (Scenario 6) of ephemeral washes shall include the same types of vegetation as mapped in the project footprint.

This compensation acreage may be included ("nested") within the acreage acquired and managed as desert tortoise habitat compensation (Condition of Certification **BIO-17**) only if:

- Adequate acreage of qualifying state-jurisdictional streambed delineated within the desert tortoise compensation lands;
- The desert tortoise habitat compensation lands are acquired and dedicated as permanent conservation lands within 18 months of the start of project construction.

If these two criteria are not met, then the project owner shall provide no fewer than ~~288.8 acres~~ 152.3 acres (Scenario 5.5) or 125.7 acres (Scenario 6) of state-jurisdictional streambed compensation lands independent of any compensation land required under other conditions of certification (adjusted to reflect the final project footprint and expert's delineation of streambed on the compensation lands), and shall also provide funding for the initial improvement and long-term maintenance and management of the acquired lands, and to comply with other related requirements this condition. Costs of

these requirements cannot be estimated in advance because jurisdictional streambed would make up only a small portion of any acquired parcel and might vary widely among available parcels. In general, however the total costs shall be based upon land acquisition and management costs as discussed in Condition of Certification **BIO-17** and shall include all associated costs as described in that Condition. This amount may be revised by the CPM in consultation with DFG, BLM and USFWS, based on further analysis of long-term management and maintenance costs. See **~~Revised~~ Biological Resources Addendum Tables 5** and ~~7~~**9**. The terms and conditions of this acquisition or easement shall be as described in Condition of Certification **BIO-17**. Mitigation for impacts to State waters shall occur within the surrounding watersheds, as close to the project site as possible.

The project owner may elect to comply with the requirements in this condition for acquisition of compensation lands, initial protection and habitat improvement on the compensation lands, or long-term maintenance and management of the compensation lands by funding, or any combination of these three requirements, by providing funds to implement those measures into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF). To use this option, the Project owner must make an initial deposit to the REAT Account in an amount equal to the estimated costs of implementing the requirement. If the actual cost of the acquisition, initial protection and habitat improvements, or long-term funding is more than the estimated amount initially paid by the project owner, the project owner shall make an additional deposit into the REAT Account sufficient to cover the actual acquisition costs, the actual costs of initial protection and habitat improvement on the compensation lands, or the long-term funding requirements as established in an approved PAR or PAR-like analysis. If those actual costs or PAR projections are less than the amount initially transferred by the applicant, the remaining balance shall be returned to the project owner.

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

Management Plan for Acquired Lands: The project owner shall prepare and submit to Energy Commission CPM and CDFG a draft Management Plan that reflects site-specific enhancement measures for the drainages on the acquired compensation lands. The objective of the Management Plan shall be to enhance the wildlife value of the drainages, and may include enhancement actions such as weed control, fencing to exclude livestock, or erosion control. Where applicable, the management plan should be integrated with desert

tortoise compensation land habitat management planning requirements as described in **BIO-17**.

Section B: On-site Measures:

1. Copies of Requirements, Stop Work Authority: The project owner shall provide a copy of the Streambed Impact Minimization and Compensation Measures to all contractors, subcontractors, and the applicant's project supervisors. Copies shall be readily available at work sites at all times during periods of active work and must be presented to any CDFG personnel or personnel from another agency upon demand. The CPM reserves the right to issue a stop work order after giving notice to the project owner, if the CPM, in consultation with CDFG, determines that the project owner is not in compliance with any of the requirements of this condition, including but not limited to the existence of any of the following:
    a. The information provided by the applicant regarding streambed alteration is incomplete or inaccurate;
    b. New information becomes available that was not known to the Energy Commission at the time of project certification; or
    c. The project or project activities as described in the Supplemental Staff Assessment/ Final Environmental Impact Statement have changed.
2. Best Management Practices: The project owner shall comply with the following conditions to protect drainages near the Project Disturbance Area:
    a. The project owner shall not operate vehicles or equipment in ponded or flowing water except as described in this condition.
    b. With the exception of the retention basins and drainage control system installed for the project the installation of bridges, culverts, or other structures shall be such that water flow (velocity and low flow channel width) is not impaired. Bottoms of temporary culverts shall be placed at or below stream channel grade.
    c. When any activity requires moving of equipment across a flowing drainage, such operations shall be conducted without substantially increasing stream turbidity.
    d. Vehicles driven across ephemeral drainages when water is present shall be completely clean of petroleum residue and water levels shall be below the vehicles' axels.
    e. The project owner shall minimize road building, construction activities and vegetation clearing within ephemeral drainages to the extent feasible.
    f. The project owner shall not allow water containing mud, silt, or other pollutants from grading, aggregate washing, or other activities to enter ephemeral drainages or be placed in locations that may be subjected to high storm flows.

g. The project owner shall comply with all litter and pollution laws. All contractors, subcontractors, and employees shall also obey these laws, and it shall be the responsibility of the project owner to ensure compliance.

h. Spoil sites shall not be located at least 30 feet from the boundaries and drainages or in locations that may be subjected to high storm flows, where spoils might be washed back into drainages.

i. Raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to vegetation or wildlife resources, resulting from project-related activities, shall be prevented from contaminating the soil and/or entering waters of the State. These materials, placed within or where they may enter a drainage by the project owner or any party working under contract or with the permission of the project owner, shall be removed immediately.

j. No broken concrete, debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material from any construction or associated activity of whatever nature shall be allowed to enter into, or placed where it may be washed by rainfall or runoff into, waters of the State.

k. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any drainage.

l. No equipment maintenance shall occur within 150 feet of any ephemeral drainage where petroleum products or other pollutants from the equipment may enter these areas under any flow.

m. Stationary equipment such as motors, pumps, generators, and welders, located within or adjacent to a drainage shall be positioned over drip pans. Stationary heavy equipment shall have suitable containment to handle a catastrophic spill/leak. Clean up equipment such as booms, absorbent pads, and skimmers, shall be on site prior to the start of construction.

n. The cleanup of all spills shall begin immediately. The CDFG, BLM Wildlife Biologist, and CPM shall be notified immediately by the project owner of any spills and shall be consulted regarding clean-up procedures.

3. Non-Native Vegetation Removal. The owner shall remove any non-native vegetation (Consistent with the Weed Management Plan, see Condition of Certification **BIO-11**) from any on-site portion of any drainage that requires the placement of a bridge, culvert or other structure. Removal shall be done at least twice annually (Spring/Summer) throughout the life of the Project.

4. Reporting of Special-Status Species: If any special-status species are observed on or in proximity to the project site, or during project surveys,

the project owner shall submit California Natural Diversity Data Base (CNDDB) forms and maps to the CNDDB within five working days of the sightings and provide the regional CDFG office with copies of the CNDDB forms and survey maps. The CNDDB form is available online at: www.dfg.ca.gov/whdab/pdfs/natspec.pdf. This information shall be mailed within five days to: California Department of Fish and Game, Natural Diversity Data Base, 1807 13th Street, Suite 202, Sacramento, CA 95814, (916) 324-3812. A copy of this information shall also be mailed within five days to CDFG, BLM Wildlife Biologist, and the CPM.

5. Notification: Prior to any activities that cross or have the potential to impact any jurisdictional drainage, the project owner shall provide a detailed map to the CDFG, BLM Wildlife Biologist, and CPM in a GIS format that identifies all potential crossings of jurisdictional habitats including retention basins, detention basins, reconfigured channels and culverts. The maps shall identify the type of crossing proposed by the owner such as bridges, culverts, or other mechanism and the best management practices that would be employed. The project owner shall notify the CPM, BLM Wildlife Biologist, and CDFG, in writing, at least five days prior to initiation of project activities in jurisdictional areas and at least five days prior to completion of project activities in jurisdictional areas. The project owner shall notify the CPM, BLM Wildlife Biologist, and CDFG of any change of conditions to the project, the jurisdictional impacts, or the mitigation efforts, if the conditions at the site of the proposed project change in a manner which changes risk to biological resources that may be substantially adversely affected by the proposed project. The notifying report shall be provided to the CPM, BLM Wildlife Biologist, and CDFG no later than 7 days after the change of conditions is identified. As used here, change of condition refers to the process, procedures, and methods of operation of a project; the biological and physical characteristics of a project area; or the laws or regulations pertinent to the project, as described below. A copy of the notifying change of conditions report shall be included in the annual reports.

   a. Biological Conditions: a change in biological conditions includes, but is not limited to, the following: 1) the presence of biological resources within or adjacent to the project area, whether native or non-native, not previously known to occur in the area; or 2) the presence of biological resources within or adjacent to the project area, whether native or non-native, the status of which has changed to endangered, rare, or threatened, as defined in section 15380 of Title 14 of the California Code of Regulations.

   b. Physical Conditions: a change in physical conditions includes, but is not limited to, the following: 1) a change in the morphology of a river, stream, or lake, such as the lowering of a bed or scouring of a bank, or changes in stream form and configuration caused by storm events; 2) the movement of a river or stream channel to a different location; 3) a reduction of or other change in vegetation on the bed, channel, or bank

of a drainage, or 4) changes to the hydrologic regime such as fluctuations in the timing or volume of water flows in a river or stream.

c. Legal Conditions: a change in legal conditions includes, but is not limited to, a change in Regulations, Statutory Law, a Judicial or Court decision, or the listing of a species, the status of which has changed to endangered, rare, or threatened, as defined in section 15380 of Title 14 of the California Code of Regulations.

Verification: No fewer than 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall implement the mitigation measures described in this condition. No fewer than 30 days prior to the start of work potentially affecting waters of the State, the project owner shall provide written verification (i.e., through incorporation into the BRMIMP) to the CPM and BLM Wildlife Biologist that the above best management practices will be implemented and provide a discussion of work in waters of the State in Compliance Reports for the duration of the project.

Within 30 days after completion of the first year of project construction, the project owner shall provide to the CPM for review and approval a report identifying that appropriate mitigation lands have been obtained, verification of the acreage of state jurisdictional streambeds on the compensation lands (to be delineated using methodology identical to the delineation of on-site jurisdictional streambeds), a draft Management Plan for review and approval by the CPM and CDFG, and verification on ongoing enhancement techniques, and a summary of all modifications made to the existing channels on the project site.

EVAPORATION POND DESIGN, MONITORING, AND MANAGEMENT PLAN

BIO-27 Staff recommends adopting Condition of Certification **BIO-27** as provided in the SSA.

CHANNEL DECOMMISSIONING AND RECLAMATION PLAN

BIO-28 Staff recommends adopting Condition of Certification **BIO-28** as provided in the SSA.

CLOSURE PLAN MEASURES

BIO-29 Staff recommends adopting Condition of Certification **BIO-29** as provided in the SSA.

IN-LIEU FEE MITIGATION OPTION

BIO-30 Staff recommends adopting Condition of Certification **BIO-30** as provided in the SSA.

PROJECT CONSTRUCTION AND COMPENSATION PHASING PLAN

BIO-31 As an alternative to providing mitigation or security for the entire project prior to the start of the first ground-disturbing activities, the Project Owner may

elect to provide compensatory mitigation for the total Project Disturbance Area in two phases and may elect to provide security in three phases as specified in this condition.

Only the phases identified as Phase 1a, Phase 1b, and Phase 2, as described in this condition, in text and maps provided on ~~August 11 or August 12,~~ September 10, 2010 by the Project Owner ~~("Applicant's Phase 1a Information" dated August 12, 2010 but reported in the dockets log as filed August 11, 2010) and in the Supplemental Staff Assessment~~ (tn: 58411, Applicant's submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information, Figures 11 and 12 [Scenario 6] or Figures 17 and 18 [Scenario 5.5]) may be used for the phasing of mitigation and security requirements. To the extent those ~~three~~ sources are found to contain conflicting information about Project phasing, the description in this condition shall control. In particular, the Project Owner has divided the project's Phase 1 activities into two separate sub-phases, identified as Phase 1a and Phase 1b, since the Supplemental Staff Assessment was prepared. This condition presumes that the phases identified in this condition are identical to the phases that the Bureau of Land Management (BLM) will authorize work on through issuance of "notices to proceed"; if phases used by BLM are not identical to the phases as described in this condition and the materials identified above, the Project Owner shall obtain separate written authorization from the CPM prior to beginning work on each of the three phases.

For purposes of this condition:

"Project Disturbance Area" or "ground disturbance area" means all areas that will be temporarily or permanently disturbed during construction or operation of the Project, including all linear facilities.

"Project footprint" means the Project Disturbance Area and undeveloped areas inside the Project's boundaries that will no longer provide functional habitat value, including but not limited to desert tortoise habitat, Mojave fringe-toed lizard habitat, burrowing owl habitat, rare plant habitat, and areas within ephemeral washes and drainages.

"Project construction" or "construction" means any ground-disturbing activity, including but not limited to construction work, site mobilization, fence construction, or any tortoise translocation activities.

"Security" means the security that is required under other biological conditions of certification to ensure required mitigation measures will be implemented, or payments by the Project Owner into the National Fish and Wildlife Service mitigation account in accordance with the option provided in other conditions of certification.

Overview of Project Phases

Phase 1a is strictly limited to construction of the main access road, the waterline, the Main Services Area, the substation area, the installation of 60 SunCatcher pedestals, the temporary at-grade crossing over the Burlington Northern Santa Fe (BNSF) railroad tracks, the permanent bridge spanning the

railroad tracks, and any surveys, translocations, or other activities required within the Phase 1a area that are required by Commission Conditions of Certification. The ground disturbance area during Phase 1a shall be no greater than 250 acres and shall be limited to the geographic areas indicated on the maps identified above.

Phase 1b is strictly limited to construction of ~~flood control basins in the northern part of project area,~~ solar fields and related facilities located throughout the remainder of the area identified as Phase 1 in the Supplemental Staff Assessment and in applicant's Scenario 5.5 or Scenario 6 (tn: 58411, Applicant's submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information), and any surveys, translocations, or other activities required within the Phase 1b area that are required by Commission Conditions of Certification. The ground disturbance area during Phase 1b shall be limited to the areas indicated on the maps identified above.

Phase 2 is strictly limited to the remainder of the project site as identified as either Scenario 5.5 or Scenario 6 in applicant's maps (tn: 58411, Applicant's submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information). ~~as identified in the Supplemental Staff Assessment.~~

General Requirements

At no time may the Project Owner cause ground-disturbance to any location outside of the area that has been approved for construction according to the phasing plan identified in this Condition of Certification.

Prior to initiating construction in any phase of the Project, the Project Owner shall comply with all pre-construction requirements in this and other Conditions of Certification and shall notify the CPM that it has obtained a Notice to Proceed for the phase or subphase from the BLM.

Construction activities, including work on linear and non-linear features, shall not occur outside desert tortoise exclusion areas that have been fenced and cleared in accordance with USFWS protocols and as described in Condition of Certification **BIO-15** (Desert Tortoise Clearance and Exclusion Fencing).

The Project Owner shall provide security to ensure implementation of the mitigation requirements in Conditions of Certification **BIO-12** (Special-Status Plant Impact and Avoidance and Minimization)**, BIO-13** (Mojave Fringe-Toed Lizard Mitigation), **BIO-16** (Desert Tortoise Translocation Plan), **BIO-17** (Desert Tortoise Compensatory Mitigation), **BIO-21** (Burrowing Owl Impact Avoidance and Minimization Measures), and **BIO-26** (Streambed Impact Minimization and Compensation Measures) for each of the three phases prior to any Project construction associated with that phase. Phasing of security only applies to security required by the Conditions listed above. If the Project Owner elects to phase payments of security, the amount of the security (including payments to NFWF [see definition of security above]) will be adjusted by the CPM in consultation with CDFG, BLM and USFWS prior to each phase to reflect the CPM's best estimate at that time of the estimated

costs of land acquisition, long-term management and maintenance costs, and other costs that are included in the security computation. Those costs may be greater than the costs identified in the Conditions of Certification.

Even when security has been provided, the Project Owner shall complete the acquisition, protection and transfer of all compensation lands required in the Conditions of Certification listed above, as well as all funding requirements associated with those lands, within the time periods identified in those Conditions of Certification, except that the time period for providing compensation lands and funding associated with both Phases 1a and 1b shall be measured from the start of construction of Phase 1a alone, and the period for providing lands and funding required for Phase 2 activities shall be measured from the start of construction of Phase 2.

Additional requirements within the Project's Conditions of Certification that are not expressly phased in this Condition shall be phased as necessary to carry out the purpose of this condition, or to ensure that no project construction occurs in an area for which the Project Owner has not provided security and obtained permission to begin construction. Examples may include such activities as construction and location of desert tortoise exclusion fencing or timing of pre-construction clearance surveys for other species. The Project Owner shall first obtain approval from the CPM, acting in consultation with BLM, CDFG and USFWS, for the phasing of any requirements or deadlines that are not expressly phased in Conditions of Certification.

Detailed Phasing Requirements

Phased impacts and compensation requirements are described in tables below, by phase.

Phase 1a

Phase 1a would result in the loss or isolation of 250 acres of desert tortoise habitat from the placement of fencing, road construction, and the development of project facilities. Phase 1a implementation would be the same under Scenarios 5.5 or 6. The construction and fencing of the temporary and Main Access Road would also result in the temporary isolation of approximately 650 acres of desert tortoise habitat. In addition, proposed Phase 1a Project construction would affect state-jurisdictional streambeds and, possibly, burrowing owl or rare plant locations that are identified during pre-construction and late-season botanical surveys. The applicant shall provide an enumeration of streambed, burrowing owl, and rare plant habitat impacts and shall provide security for required compensation those impacts as described in Conditions of Certification **BIO-12** (Special-Status Plant Impact and Avoidance and Minimization), **BIO-17** (Desert Tortoise Compensatory Mitigation)**, BIO-21** (Burrowing Owl Impact Avoidance and Minimization Measures), and **BIO-26** (Streambed Impact Minimization and Compensation Measures) prior to initiating Project construction associated with Phase 1a, as set forth in the verification section of this Condition.

All project access throughout Phase 1a construction shall be via temporary or permanent access as mapped by the applicant. Isolation of desert tortoise habitat between the proposed temporary and permanent construction access routes shall be limited to winter months when tortoises are largely inactive. Desert tortoise exclusion fencing shall be installed along the existing temporary construction access routes prior to other ground disturbance at the project site, and fencing shall be maintained as described in Condition of Certification **BIO-15** (Desert Tortoise Clearance and Exclusion Fencing) until completion of the proposed Main Access Road. Desert tortoise exclusion fencing shall be installed along the proposed Main Access Road alignment prior to beginning construction of that road. If project-related access along the temporary construction access route continues beyond March 15, 2011, the Project Owner shall provide additional security to the CPM for all acreage within the area isolated between the two fenced access routes (estimated by staff as approximately 650 acres) by March 15, 2011 and shall implement desert tortoise clearance surveys and translocation of any tortoises within the isolated area consistent with the requirements of Condition of Certification **BIO-15** (Desert Tortoise Clearance and Exclusion Fencing) . If the Main Access Road is complete by March 15, 2011 and no further project access via the temporary route is necessary, desert tortoise fencing along the temporary access road shall be removed on or before March 15, 2011

BIO-31 Table 1a.

Phase 1a Impacts and Compensation Acreage (Scenario 5.5 or Scenario 6)

Resource	**Phase 1a Impact (acres) and Mitigation Ratios**	**Compensation (acres)**
Direct impact: Desert tortoise habitat	~~40~~ 56 ac. S of BNSF at 1:1 ~~210~~ 194 ac. N of BNSF at 3:1	~~40~~ 56 ~~630~~ 582
State Jurisdictional streambed [1]	[to be provided by Project Owner] at 1:1	
Mojave fringe-toed lizard [1]	0	0
Additional (burrowing owl, special status plants) [1]	[to be provided by Project Owner] at 3:1	
Total per-acre basis for Phase 1a Security (through 15 March 2011)		**~~670~~ 638[2] acres**
Potential impact: Isolation of desert tortoise habitat (after 15 March 2011)	650 acres at 1:1 [staff estimate; to be verified by Project Owner]	650 acres
Total per-acre basis for Phase 1a Security (after 15 March 2011, pending status of temporary access route)		**~~1,320~~ 1,288 [2] acres**

1. Compensation may be nested within desert tortoise compensation land.

2. Acreages to be adjusted upon completion of each construction phase and upon confirmation by CPM ~~[and/or biologist?]~~ in consultation with CDFG, USFWS, and BLM of acres impacted.

Phase 1b

Phase 1b consists of ~~two non-contiguous project components: flood control basins in the northern portion of the project area, and~~ solar generators in the central portion of the project area, north of the BNSF railroad. Phase 1b implementation would be the same under Scenarios 5.5 or 6. Phase 1b would directly impact ~~2,130~~ 1,626 acres of desert tortoise habitat. Compensation mitigation ratios for these project components shall be as described in Condition of Certification **BIO-17**(Desert Tortoise Compensatory Mitigation). Construction of stormwater detention basins and debris basins that may be constructed during Phase 1b, pending hydrology analyses and BNSF review pursuant to Condition of Certification **SOIL AND WATER 8** ~~identified in Phase 1b~~ will also result in direct impacts to State jurisdictional streambeds located downstream in portions of Phase 2. For that reason, all jurisdictional waters that occur below ~~the proposed~~ any future detention basins ~~located on the northern border of the project are~~ may also be included in the calculation of Phase 1b security and in the calculation of Phase 1 mitigation requirements. In addition, proposed Phase 1b Project construction could affect burrowing owl or rare plant locations that may be identified during pre-construction and late-season botanical surveys required in the Conditions of Certification described below. The applicant shall provide the CPM with an enumeration of burrowing owl and rare plant habitat impacts and shall provide security for required compensation of those impacts as described in Conditions of Certification **BIO-12** (Special-Status Plant Impact and Avoidance and Minimization)**, BIO-17**(Desert Tortoise Compensatory Mitigation)**, BIO-21**(Burrowing Owl Impact Avoidance and Minimization Measures), and **BIO-26** (Streambed Impact Minimization and Compensation Measures)**.** Security shall be provided prior to the start of any Phase 1b construction, as set forth in the verification section of this Condition, or prior to September 1, 2011, whichever occurs first.

BIO-31 Table 1b.

Phase 1b Impacts and Compensation Acreage (Scenario 5.5 or Scenario 6)

Resource	**Phase 1b Impact (acres) and Mitigation Ratios**	**Compensation (acres)**
Desert tortoise habitat (excluding disturbed or isolated acreage reported above in Phase 1a)	1,626~~7~~ at 3:1 ~~450 at 5:1~~	4,878~~81~~ acres ~~2,250 acres~~
State Jurisdictional streambed [1]	~~289 acres (less Phase 1a acreage)~~ [to be provided by Project Owner] at 1:1	~~289 acres~~

Mojave fringe-toed lizard [1]	[to be provided by Project Owner] at 1:1 [to be provided by Project Owner] at 3:1	
Additional (burrowing owl, special status plants) [1]	[to be provided by Project Owner]	
Total per-acre basis for Phase 1b Security		**~~7,131~~ 4,878[2] acres**

1. Compensation may be nested within desert tortoise compensation land.

2. Acreages to be adjusted upon completion of each construction phase and upon confirmation by CPM ~~[and/or biologist?]~~ in consultation with CDFG, USFWS, and BLM of acres impacted.

Phase 2

Phase 2 construction would directly impact desert tortoise habitat north and south of BNSF railroad tracks. Phase 2 implementation would be similar under Scenarios 5.5 or 6. Both scenarios would impact 2,085 acres of occupied desert tortoise habitat south of the BNSG railroad tracks to be mitigated at a 1:1 ratio. In addition, Scenario 5.5 would impact 369 acres of high-density occupied desert tortoise habitat to be mitigated at the 5:1 ratio. Compensation mitigation ratios for these project components shall be as described in Condition of Certification **BIO-17**(Desert Tortoise Compensatory Mitigation). In addition, proposed Phase 2 Project construction would affect Mojave fringe-toed lizard habitat and could affect burrowing owl or rare plant locations that may be documented during late-season field surveys. The applicant shall provide the CPM an enumeration of burrowing owl, and rare plant habitat impacts and shall provide security for required compensation of those impacts as described in Conditions of Certification **BIO-12** (Special-Status Plant Impact and Avoidance and Minimization)**, BIO-13** (Mojave Fringe-Toed Lizard Mitigation), **BIO-**16 (Desert Tortoise Translocation Plan), **BIO-17** (Desert Tortoise Compensatory Mitigation), **BIO-21** (Burrowing Owl Impact Avoidance and Minimization Measures), and **BIO-**26 (Streambed Impact Minimization and Compensation Measures) Security shall be provided to the CPM, prior to beginning of any project-related ground disturbing activities, as set forth in the verification section of this Condition.

BIO-31 Table 2.

Phase 2 Impacts and Compensation Acreage.

Resource	**Phase 2 Impact (acres) and Mitigation Ratios**	**Compensation (acres)**
Desert tortoise habitat (excluding disturbed or isolated acreage in Phase 1a; see Table 1a)	~~2,132~~ 2,085 acres S of BNSF at 1:1 283 acres N of BNSF at 3:1	~~2,132~~ 2,085 849
Desert tortoise habitat at 5:1	~~1,766~~ 369 acres at 5:1	~~8,830~~ 1,845

(Scenario 5.5 only)		
State Jurisdictional streambed [1]	0	0
Mojave fringe-toed lizard [1]	21.4 acres at 1:1 143.3 acres at 3:1	21.4 429.9
Additional (burrowing owl, special status plants)	To be provided by the Project Owner.	
~~Total per-acre basis for Security~~		**~~10,962[2] acres~~**
Total Scenario 5.5 per-acre basis for Phase 2 Security		**5,230[2] acres**
Total Scenario 6 per-acre basis for Phase 2 Security		**3,385[2] acres**

1. Compensation may be nested within desert tortoise compensation land.

2. Acreages to be adjusted upon completion of each construction phase and upon confirmation by CPM ~~[and/or biologist?]~~ in consultation with CDFG, USFWS, and BLM of acres impacted.

Verification: No fewer than 30 days prior to the start of desert tortoise clearance surveys for each phase, the Project owner shall submit a description of the proposed construction activities for that phase to CDFG, USFWS and BLM for review and to the CPM for review and approval. The description for each phase shall include the proposed construction schedule, a figure depicting the locations of proposed construction and number of acres of rare plant habitat, burrowing owl habitat, and state-jurisdictional streambeds to be disturbed.

If all mitigation requirements, including habitat acquisition and protection, are not completed for a Project phase at least 30 days prior to the start of ground-disturbing activities for that phase, the Project Owner shall provide verification to the CPM and CDFG that approved security (as described in Conditions of Certification **BIO-12** (Special-Status Plant Impact and Avoidance and Minimization), **BIO-13** (Mojave Fringe-Toed Lizard Mitigation), **BIO-16** (Desert Tortoise Translocation Plan), **BIO-17** (Desert Tortoise Compensatory Mitigation), **BIO-21** (Burrowing Owl Impact Avoidance and Minimization Measures), and **BIO-26** (Streambed Impact Minimization and Compensation Measures)) has been established in accordance with these Conditions of Certification no later than 30 days prior to beginning ground-disturbing activities for each Phase. Prior to submitting verification regarding the security to the CPM, the project owner shall obtain the CPM's approval of the security as required by the other Conditions For Phase 1b, the Project Owner shall obtain the CPM's approval of security and shall provide verification that approved security has been established by September 1, 2011 or 30 days prior to the start of Phase 1b construction, whichever occurs first. The fixed deadline for Phase 1b security is necessary because under terms of this Condition, compensation lands and associated funding for both Phase 1a and Phase 1b will be due in the first half of 2012, assuming Phase 1a construction begins as planned in late 2010, and security must be in place well in advance of the mitigation obligations that are being guaranteed.

The Project Owner shall provide written verification to the CPM, CDFG, BLM and USFWS of the compensation lands acquisition, protection, and transfer requirements and satisfaction of associated funding requirements as set forth in **BIO-17** and other conditions within the following time frames: (1) For Phase 1a and Phase 1b mitigation, verification shall be provided no later than18 months after the start of construction of Phase 1a, and (2) for Phase 2 mitigation, such verification shall be provided no later than 18 months after the start of construction of Phase 2. Other verification, notification and reporting requirements and other deadlines set forth in BIO-17 and other Conditions that relate to compensation land requirements, to the option of funding mitigation through the NFWF account, or to use of approved third parties to carry out mitigation requirements also apply to Phase 1 (1a and 1b combined) and to Phase 2.

Within 90 days after completion of all project related ground disturbance for each project phase or sub phase, the project owner shall provide to the CPM, CDFG, BLM and USFWS an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during Project construction.

C.2.15 CONCLUSIONS

With implementation of staff's proposed conditions of certification, construction and operation of either Scenario 5.5 or Scenario 6 would comply with all federal, State, and local laws, ordinances, regulations, and standards relating to biological resources.

Many of staff's proposed Conditions of Certification require the submittal of draft plans, proposals, or survey results prior to the start of construction. These reports are necessary for staff to ensure impacts will be minimized, as the proposed project would be located in an area with a rich diversity of sensitive biological resources. Please see **Biological Resources Table 19** in the SSA for a summary of these pre-construction plan requirements.

Four of staff's recommended Conditions of Certification would require the Project owner to acquire compensation lands to mitigate the Project's impacts to biological resources. The most significant of these is **BIO-17** (Desert Tortoise Compensatory Mitigation).The others are Conditions of Certification **BIO-12**, **BIO-13**, and **BIO-26**. **BIO-12** (Special-Status Plant Impact Avoidance and Minimization) provides the option of mitigating impacts to rare plants that may be discovered on the site during late-season botanical surveys. **BIO-13** (Mojave Fringe-Toed Lizard Mitigation) would require compensation for project impacts to this animal. **BIO-26** (Streambed Impact Minimization and Compensation Measures) would require compensation for jurisdictional streambed acreage impacted by the project. In each of these conditions, staff recommends a financial security to ensure adequate funding to acquire and manage the compensation lands. Staff recommends that this security should be equal to staff's estimated costs for habitat compensation and management. Staff recognizes that some potential compensation lands may support more than one of these resources, and staff recommends that, wherever applicable, the project owner should seek compensation lands meeting selection criteria for more than one of these resources, as described in these Conditions of Certification, below. However, pending acquisition of compensation

lands, staff recommends separate securities for each resource except burrowing owl security described in Condition of Certification **BIO-22**.

Staff has calculated the acreage and estimated costs for desert tortoise compensation lands under Scenarios 5.5 and 6, as described in Condition of Certification **BIO-17**. Staff provides estimates of acreage and costs for Mojave fringe-toed lizard compensation in **BIO-13**. Any potential compensation acreage for rare plants, pursuant to **BIO-12**, would be determined upon completion of late-season field surveys and cannot be estimated at this time. Staff anticipates that all compensation lands for state jurisdictional streambeds as required under **BIO-26** would be "nested" within desert tortoise compensation lands, avoiding necessity for additional compensation lands. However, as described in **BIO-26**, further compensation lands may be required dependent upon the extent of state jurisdictional waters on the desert tortoise compensation lands. For streambed compensation, available private land parcels would rarely if ever be made up only of suitable streambed habitat. However, staff bases its estimated cost for compensation of streambed impacts on the acreage of state-jurisdictional streambed habitat as provided by the applicant. **Biological Resources Addendum Table 9,** below, presents staff's cost estimates and recommended security for each of these recommended conditions of certification.

C.2.14 REFERENCES

The analysis of Scenario 5.5 and Scenario 6 include the same references identified in the SSA with the following exceptions.

USFWS 2010d. United States Fish and Wildlife Region 8 Interim Guidelines for the Development of a Project-Specific Avian and Bat Protection Plan for Solar Energy Plants and Related Transmission Facilities. Published September 2, 2010.

PERSONAL COMMUNICATIONS

Blackford, Ashleigh. Fish and Wildlife Biologist, U.S. Fish and Wildlife Service Ventura Office. Telephone conversation with Chris Huntley, California Energy Commission, on September 14, 2010, regarding the agencies consideration of allowing translocation of desert tortoises located within 500 meters of the northern project boundary to the area located north of the Scenario 5.5 or Scenario 6 project boundary.

Biological Resources Addendum Table 9
Summary of Compensation Lands Costs[1]

	Desert tortoise compensation	Mojave fringe-toed lizard compensation	Streambed compensation	Desert tortoise compensation	Mojave fringe-toed lizard compensation	Streambed compensation	Rare Plant compensation
	Scenario 5.5			Scenario 6			Both Scenarios
Number of acres	10,302	207.5	153	8.452	207.5	126	undetermined
Estimated number of parcels to be acquired, at 320 acres per parcel[2]	33	1	1	27	1	1	n/a
Land cost at $1000/acre[3]	$10,302,000.00	$207,500.00	$153,000.00	$8,452,000.00	$207,500.00	$126,000.00	n/a
Level 1 Environmental Site Assessment at $3000/parcel	$99,000.00	$3,000.00	$3,000.00	$81,000.00	$3,000.00	$3,000.00	n/a
Appraisal at no less than $5,000/parcel	$165,000.00	$5,000.00	$5,000.00	$135,000.00	$5,000.00	$5,000.00	n/a
Initial site clean-up, restoration or enhancement, at $250/acre[4]	$2,575,500.00	$51,875.00	$38,250.00	$2,113,000.00	$51,875.00	$31,500.00	n/a
Closing and Escrow Cost at $5000/parcel[5]	$165,000.00	$5,000.00	$5,000.00	$135,000.00	$5,000.00	$5,000.00	n/a
Biological survey for determining mitigation value of land (habitat based with species specific augmentation) at $5000/40-ac parcel ($125/acre)	$660,000.00	$30,000.00	$20,000.00	$540,000.00	$30,000.00	$20,000.00	n/a
3rd Party Administrative Costs (Land Cost x 10%)[6]	$1,030,200.00	$20,750.00	$15,300.00	$845,200.00	$20,750.00	$12,600.00	n/a
Agency cost to accept land[7] [(Land Cost x 15%) x 1.17] (17% of the 15% for overhead)	$1,205,334.00	$36,416.25	$26,851.50	$988,884.00	$36,416.25	$22,113.00	n/a

	Scenario 5.5			Scenario 6			Both Scenarios
Subtotal - Acquisition and Initial Site Work	$16,142,034.00	$359,541.25	$266,401.50	$13,290,084.00	$359,541.25	$225,213.00	n/a
Long-term Management and Maintenance Fund (LTMM) fee at $1450/acre[8]	$14,937,900.00	$300,875.00	$221,850.00	$12,255,400.00	$300,875.00	$182,700.00	n/a
Subt.	$31,079,934.00	$660,416.25	$488,251.50	$25,545,484.00	$660,416.25	$407,913.00	n/a
NFWF Fees	**Scenario 5.5**			**Scenario 6**			**Both Scenarios**
Establish Project Specific Account	$12,000.00	n/a	n/a	$12,000.00	n/a	n/a	n/a
Pre-proposal modified RFP or RFP processing[9]	$30,000.00	n/a	n/a	$30,000.00	n/a	n/a	n/a
NFWF Management fee For Acquisition and Enhancement Actions (Subtotal x 3%)	$484,261.02	$10,786.24	$7,992.05	$398,702.52	$10,786.24	$6,756.39	n/a
NWFW Management Fee for LTMM account (LTMM x 1%)	$149,379.00	$3,008.75	$2,218.50	$122,554.00	$3,008.75	$1,827.00	n/a
Subtotal of NFWF Fees	$675,640.00	$13,794.99	$10,210.55	$563,256.52	$13,794.99	$8,583.39	n/a
	Scenario 5.5			**Scenario 6**			**Both Scenarios**
TOTAL Estimated cost for deposit in project specific REAT-NFWF Account	**$31,755,574.02**	**$674,211.24**	**$498,462.05**	**$26,108,740.52**	**$674,211.24**	**$416,496.39**	n/a

1. Estimates prepared in consultation with CDFG, USFWS, and BLM. All costs are best estimates as of summer 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation.
2. For the purposes of determining costs, a parcel is defined as 320 acres, recognizing that some will be larger and some will be smaller, but that 320 acres provides a good estimate for the number of transactions anticipated (based on input from BLM and CDD).
3. Generalized estimate taking into consideration a likely jump in land costs due to demand, and an 18-24 month window to acquire the land after agency decisions are made. If the agencies, developer, or 3rd party has better information on land costs in the specific area where project-specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
4. Based on information from CDFG.
5. Two transactions: landowner to 3rd party; 3rd party to agency.
6. Includes staff time to work with agencies and landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; review of acquisition documents; assembling acquisition acreage, and related tasks)

7. This amount covers the estimate of BLM's cost to accept the land into the public management system and costs associated with tracking/managing the costs associated with the donation acceptance, includes two physical inspections; review and approval of the Level 1 ESA assessment; review of all title documents; drafting deed restrictions; issue escrow instructions; mapping the parcels, and related tasks.
8. Estimate for purposes of calculating general costs. The actual long term management costs will be determined using a PAR (Property Assessment Report) or PAR-like analysis tailored to the specific acquisition. Includes land management; enforcement and defense of easement or title [short and long term]; and monitoring.
9. If determined necessary by the REAT agencies if multiple 3rd parties have expressed interest; for transparency and objective selection of 3rd party to carry out acquisition.

C.3 – CULTURAL RESOURCES AND NATIVE AMERICAN VALUES

Testimony of Sarah M. Allred

C.3.1 SUMMARY OF CONCLUSIONS

Energy Commission staff has reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information, filed on September 10, 2010 for the Calico Solar Project, in accordance with the California Environmental Quality Act (CEQA). Based on this review and the analysis completed by staff for the proposed project and the Reduced Acreage Alternative in the Supplemental Staff Assessment, staff concludes that, similar to the proposed project, there would still be a significant impact to cultural resources, as detailed in the August 2010 Supplemental Staff Assessment (TN 57941).

Although the proposed reduced acreage scenarios 5.5 and 6 represent a reduction in the project acreage of 26 and 32 percent respectively, the number of cultural resources eliminated from the project area as a result of the reduced acreage scenarios represents less than one percent of the overall cultural resources that would be impacted by the project. As the number of cultural resources affected by the project would change only negligibly, staff's conclusions regarding cultural resources remain unchanged. All Conditions of Certification presented in the August 2010 Supplemental Staff Assessment and modified through the evidentiary hearing process would apply to both proposed reduced acreage scenarios 5.5 and 6.

C.4 – GEOLOGY AND PALEONTOLOGY

Testimony of Dal Hunter, Ph.D., C.E.G.

C.4.1 SUMMARY OF CONCLUSIONS

Energy Commission staff have reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 for the Calico Solar Project in accordance with the California Environmental Quality Act (CEQA). Staff also reviewed the two figures from the Applicant's Submittal of Revised Drainage Layout Figures, dated September 14, 2010, showing the revised drainage layouts for Scenario 5.5 and Scenario 6. These figures show existing drainage patterns/post-construction flow for the project site overlain on topographic maps from 1992/1993. These diagrams show the basins to be located on the northern boundary of the site are no longer proposed and that there will no longer be embankment dams located in this area. The information presented does not rule out however, whether embankment dams may be required on other portions of the project site, for example, in proximity to the railroad tracks. Staff believes the analysis in the body of the Geo/Paleo section in the Supplemental Staff Assessment and Conditions of Certification **GEO-2** and **GEO-3** should continue to apply to basins and jurisdictional embankments that are required, such that the applicant will comply with appropriate LORS. The applicant will also be required to comply with the revised version of Condition of Certification **SOIL&WATER-8,** which would require compliance with appropriate design criteria.

Based on this review and the analysis completed by staff on the proposed project and the Reduced Acreage Alternative in the Supplemental Staff Assessment, staff concludes that, similar to the proposed project, neither of the two additional reduced acreage scenarios would cause a significant adverse direct or indirect impact or contribute to a cumulative waste management impact if the applicant's and staff's proposed mitigation measures are implemented.

Although the proposed reduced acreage scenarios 5.5 and 6 represent a reduction in the project acreage of 26 and 32 percent respectively, staff's conclusions do not change with respect to the remaining geology and paleontology issues. The construction and operation of either of the two additional reduced acreage scenarios would not result in any real or significant changes in the geologic or paleontological impacts during construction and operation of the project. The impacts would be reduced to less than significant levels with the implementation of both the applicant's and staff's currently proposed mitigation measures. No additional Conditions of Certification are proposed.

C.5 – HAZARDOUS MATERIALS MANAGMENT

Testimony of Alvin Greenberg, Ph.D.

C.5.1 SUMMARY OF CONCLUSIONS

Energy Commission staff have reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 for the Calico Solar Project in accordance with the California Environmental Quality Act (CEQA). Based on this review and the analysis completed by staff on the proposed project and the Reduced Acreage Alternative in the Supplemental Staff Assessment, staff concludes that, similar to the proposed project, neither of the two additional reduced acreage scenarios would cause a significant adverse direct or indirect impact or contribute to a cumulative hazardous materials management impact if the applicant's and staff's proposed mitigation measures are implemented.

Although the proposed reduced acreage scenarios 5.5 and 6 represent a reduction in the project acreage of 26 and 32 percent respectively, staff's conclusions do not change. The construction and operation of either of the two reduced acreage alternatives would not result in any real or significant changes in the amounts or identities of hazardous materials that would be used or stored at the site and impacts would be reduced to a less than significant levels with the implementation of both the applicant's and staff's currently proposed mitigation measures. No additional Conditions of Certification are proposed.

C.6 – PUBLIC HEALTH

Testimony of Alvin Greenberg, Ph.D.

C.6.1 SUMMARY OF CONCLUSIONS

Energy Commission staff have reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 for the Calico Solar Project in accordance with the California Environmental Quality Act (CEQA). Based on this review and the analysis completed by staff on the proposed project and the Reduced Acreage Alternative in the Supplemental Staff Assessment, staff concludes that, similar to the proposed project, neither of the two additional reduced acreage scenarios would cause a significant adverse direct or indirect impact or contribute to a cumulative public health impact.

Although the proposed reduced acreage scenarios 5.5 and 6 represent a reduction in the project acreage of 26 and 32 percent respectively, staff's conclusions do not change. The construction and operation of either of the two reduced acreage alternatives would not result in any real or significant changes in the amounts or identities of toxic air contaminants released into the air and impacts on public health would remain at a less than significant level. No Conditions of Certification are proposed.

C.7 – HYDROLOGY, WATER USE AND WATER QUALITY (SOIL AND WATER RESOURCES)

Testimony of Casey Weaver, Gus Yates, John Fio and Steve Allen

C.7.1 SUMMARY OF CONCLUSIONS

Based on the information provided to date, staff has determined that construction, operation, and decommissioning of either of the proposed Scenarios (5.5 or 6) for the Calico Solar (formerly known as the Stirling Energy Systems Solar One) Project could potentially impact soil and water resources. Where 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 measures needed to ensure conformity with applicable laws, ordinances, regulations and standards, are included as conditions of certification. Staff's conclusions, based on analysis of the information submitted to date, are as follows:

1. The proposed project would be located in the Mojave Desert of San Bernardino County in an area characterized by braided stream channels, flash flooding, alluvial fan conditions, low rainfall, sparse vegetation, and the potential for wind erosion/ deposition.

2. ~~The project~~ Scenario 5.5 proposes to place ~~34,000~~ 26,540 solar dishes, known as SunCatchers, on individual pole foundations within areas known to be subject to flash flooding and erosion and sedimentation. Scenario 6 proposes to install 24,156 SunCatchers within the boundaries of Scenario 5.5. Project-related changes to the braided and alluvial fan stream hydraulic conditions could result in on-site erosion, stream bed degradation or aggradation, and erosion and sediment deposition impacts to adjacent land. SunCatchers within the stream courses could be subject to destabilization by stream scour. Impacts to soils related to wind erosion and runoff-borne erosion are potentially significant, as are impacts to surface water quality from sedimentation and the introduction of foreign materials, including potential contaminants, to the project area. Compliance with laws, ordinances, regulations and standards and Conditions of Certification **SOIL&WATER-1**, **SOIL&WATER-2**, **SOIL&WATER-3** and **SOIL&WATER-5** will mitigate these potential impacts to a level less than significant.

3.

~~The applicant completed a hydrologic study and hydraulic modeling of the major stream channels on the project site. The applicant has proposed the construction elimination of large debris basins in channels upstream of the proposed solar array. The most recently-submitted design indicates that dams will be constructed to temporarily retain flows in the basins. The applicant has not submitted the comprehensive detail that staff needs to analyze the ability of the drainages basins to retain maximum flows and protect the project from flooding. As a result, staff has recommended adoption of Conditions of Certification **GEO-2** and **-3**, which contain performance standards that ensure that the design of the debris basin dams will comply with current engineering practices and existing regulations, and prevent significant impacts.~~ Staff reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 and the assessment from Dr. Chang including

the applicant's proposed revisions to **Soil & Water-8**, filed on September 8, 2010, and the Applicant's Submittal of Revised Drainage Layout Figures, dated September 14, 2010 for the Calico Solar Project in accordance with the California Environmental Quality Act (CEQA).

Staff acknowledges that Dr. Chang's recommendations in his September 8, 2010, *ASSESSMENT OF DETENTION BASINS/DEBRIS BASINS FOR CALICO SOLAR SITE* include eliminating the previously proposed detention basins from the project site due to potential adverse impacts to the fluvial system. Dr. Chang recommends that installation of "…SunCatchers stay away from those washes with larger flow depths and greater potential for erosion and sediment." Furthermore, Dr. Chang states that "…the proposed solar units will have insignificant effects on the arid-land hydrology of the project site." While these recommendations and conclusions may be valid, there was a lack of backup documentation such as references, drawings, studies, calculations or models provided to review and evaluate.

Staff also reviewed the two figures from the Applicant's Submittal of Revised Drainage Layout Figures, dated September 14, 2010, showing the revised drainage layouts for Scenario 5.5 and Scenario 6. These figures show existing drainage patterns/post-construction flow for the project site overlain on topographic maps from 1992/1993.

Based on our review of the submitted documents discussed herein, staff believes Condition of Certification **SOIL&WATER-8** largely addresses the proposed design changes however minor revisions are appropriate to address the specific design intent. Staff believes the proposed revisions to Condition of Certification shown below provide the necessary performance measures to ensure there is a framework for design development applicable to alternative scenarios 5.5 and 6. In addition, since the applicant has not submitted the comprehensive detail that staff needs to analyze the ability of any necessary drainages basins to retain maximum flows and protect the project from flooding staff still recommends adoption of Conditions of Certification **GEO-2** and **-3**, which contain performance standards that ensure that the design of the debris basin dams will comply with current engineering practices and existing regulations, and prevent significant impacts.

4. Basins or other forms of flood protection have not been addressed for ~~the three~~ drainages that traverse ~~private property near the center of~~ the project site and enter the proposed solar array. Impacts due to flooding in ~~these~~ this area~~s~~ ~~are~~ is potentially significant without adequate mitigation. This condition leaves portions of the project subject to significant adverse impact due to flooding. Any proposed designs to mitigate these potential flood-related impacts must comply with requirements set forth in Conditions of Certification **SOIL&WATER-1**, **-2**, **-3** and **-8**, which will ensure that no adverse impacts due to flooding will occur.
5. The applicant's Draft Drainage, Erosion, and Sedimentation Control Plan may mitigate the potential on site project-related storm water and sediment impacts. However, the calculations and assumptions used to evaluate potential storm water and sedimentation impacts in the Draft Plan are imprecise and have limitations and uncertainties associated with them such that the magnitude of potential impacts that could occur cannot be determined precisely. As a result, staff drafted Conditions of Certification **SOIL&WATER-1**, **-2**, and **-3** to define specific methods of design

analysis, development of best management practices, and monitoring and reporting procedures to mitigate impacts related to flooding, erosion, sedimentation, and stream morphological changes.

6. The applicant has not provided information necessary to complete development of requirements for dredge and fill in waters of the State. Compliance with LORS, particularly the Clean Water Act requirements, will insure no adverse impacts to waters of the State. In addition, staff drafted Conditions of Certification **SOIL&WATER-1**, **-2**, and **-3** to define specific methods of design analysis, development of best management practices, and monitoring and reporting procedures to mitigate impacts related to flooding, erosion, sedimentation, and stream morphological changes.

7. Surface water and groundwater quality could be affected by construction activities and ongoing operational activities on the project site including mirror washing, vehicle use and fueling, storage of oils and chemicals, the proposed septic and leach field system for sanitary wastes, and wastes generated from the water treatment system. These impacts are potentially significant. Conditions of Certification **SOIL&WATER-1**, **-2**, **-3 and -5** will mitigate these potential impacts to a level less than significant. The applicant has not provided information necessary to complete development of requirements for discharges of brine waters to evaporation ponds or sanitary septic systems. However, staff has identified performance standards that will ensure no significant adverse impacts will occur, and included these performance standards in Conditions of Certification **SOIL&WATER-2** and **-3** and **Soil and Water Appendix B.**

8. There is uncertainty in the long-term reliability of the proposed water supply. Condition of Certification **SOIL&WATER-9** is proposed to provide water conservation and plans for an alternative supply, if necessary, to ensure power plant and potable water demands are met for the project.

9. Dust control (during both construction and operation) and mirror washing (during operation) will comprise the primary water uses for the project. Daily maximum water use is estimated to be less than 43.7gallons per minute (gpm) during construction and less than 69.8 gpm during operation (maximum annual construction and operational water use is less than 142.4 acre feet per year (AFY) and less than 20.4 AFY, respectively). Condition of Certification **SOIL&WATER-4** ensures groundwater storage depletion and water level declines due to project groundwater use are less than significant by limiting annual construction water use to 145 AF and annual operational water use to 21 AF.

10. Water budget estimates and simulated drawdown due to proposed project pumping indicate groundwater storage depletion and water level declines will be less than significant. Condition of Certification **SOIL&WATER-4** limits annual groundwater use during construction and project operations. Condition of Certification **SOIL&WATER-7** shall confirm these findings by requiring groundwater level monitoring and reporting to document pre-project groundwater conditions and measure changes that occur as a result of groundwater use for project construction and operations.

11. Waste water will be generated as a byproduct of water treatment processes, equipment maintenance and from sanitary practices. Conditions of Certification

SOIL&WATER-2 and **-5** are proposed by staff to ensure impacts caused by generation and disposal of wastewater would be less than significant.

12. The proposed project would use air-cooled radiators fitted on each individual engine for heat rejection. Use of this technology would substantially reduce potential water use and is consistent with Energy Commission water policy.

13. Conformance with the Conditions of Certification presented in the SSA will assure the project can be constructed to comply with LORS and render environmental impacts to levels that are less than significant,

C.7.2 INTRODUCTION

This section analyzes potential impacts to soil and water resources from the construction and operation of the proposed Calico Solar Project. The analysis specifically focuses on the potential for the Calico Solar Project to:

- cause accelerated wind or water erosion or sedimentation;
- exacerbate flood conditions in the vicinity of the project;
- adversely affect surface or groundwater supplies;
- degrade surface or groundwater quality; and,
- comply with all applicable laws, ordinances, regulations, and standards (LORS) and state policies.

Where the potential for significant adverse impacts is identified, staff has proposed mitigation measures to reduce the significance of the impacts, if possible, and has recommended conditions of certification.

C.7.3 METHODOLOGY AND THRESHOLDS FOR DETERMINING ENVIRONMENTAL CONSEQUENCES

The most significant potential impacts due to project development are typically those leading to soil erosion, flooding, or depletion or degradation of water resources. Thresholds for determining significance in this document are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (CCR 2006).

Soils, hydrology and water resources impacts would be considered significant if the proposed project results in the effects listed below:

- violates any water quality standards or waste discharge requirements.
- substantially depletes groundwater supplies or interferes substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

- substantially alters the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation onsite/offsite.
- substantially alters the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite/offsite.
- creates or contributes runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- otherwise substantially degrades surface water or groundwater quality.
- places structures within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
- exposes people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

Staff believes that soil erosion and flooding impacts, which are described below, are the most potentially significant impacts associated with the proposed project.

- The project will cause erosion of the project site and deposition of sediment into waters of the State. Portions of the site will largely be barren soil when constructed. Barren soil is subject to erosion by wind and water. Application of soil stabilizers and adherence to best management practices (BMPs) would reduce surface soil erosion and sedimentation impacts to less than significant levels.
- There could be flooding of the project site, as designed and constructed, and redirection of flood flows. Foundation elements (driven hollow poles) designed to support the SunCatchers are proposed to be installed within existing drainage channels. The volume of the foundation elements will decrease the capacity of the existing channel to contain flood flows. Adherence to the Conditions of Certification regarding the construction and maintenance of the foundation elements within the active channels will reduce the potential impacts to less than significant levels.
- ~~Dams will be constructed across drainages to create flood control basins designed to prevent flooding of the project site while allowing low flow discharges to pass sediment and water across the project. Adherence to the Conditions of Certification regarding the construction and maintenance of the flood control basins will reduce the potential impacts to less than significant levels.~~
- Basins or other form<u>s</u> of flood protection have not been addressed for the ~~three~~ drainages that traverse ~~private property near the center of~~ the project <u>site</u>. ~~and enter the proposed solar array.~~ Impacts due to flooding in these areas are potentially significant without adequate mitigation.

C.7.3.1 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

C.7.4 PROPOSED PROJECT

C.7.4.1 SETTING AND EXISTING CONDITIONS

Proposed Project

The proposed ~~Calico Solar Project site~~ Scenario 5.5 ~~is~~ encompasses approximately ~~6,215~~ 4,613 acres and Scenario 6 encompasses approximately 4,244 acres of undeveloped land located within the Mojave Desert in the central portion of San Bernardino County. The site is located approximately 37 miles east of Barstow, California with its southern boundary adjacent to Interstate 40 (I-40) (**Soil and Water Figure 1**). Main access to the project is via north-bound Hector Road, which exits I-40, enters the southern project boundary near the center line of the project and travels north for approximately 1 mile, where it crosses the Burlington North Santa Fe (BNSF) railroad. Secondary access to the project is attained adjacent to the Pisgah substation. Access to the Pisgah substation begins on I-40 at the southbound Hector Road off ramp. Southbound Hector Road ends abruptly at the intersection with old Route 66. Taking east-bound Rte 66 approximately 4 3/4 miles, the road turns north, passes beneath I-40 and turns west for approximately 1 mile ending at a northeast heading dirt road that leads to the Pisgah substation, approximately ¼ mile northeast of that intersection.

The proposed project would utilize SunCatchers — 40-foot tall Stirling dish technology developed by the applicant — which track the sun and focus solar energy onto Power Conversion Units (PCU) (SES 2008f 3-2) to generate electricity. Each PCU consists of a solar receiver heat exchanger and a closed-cycle, high-efficiency Solar Stirling Engine specifically designed to convert solar power to rotary power via a thermal conversion process. The engine drives an electrical generator to produce grid-quality electricity.

~~Phase I~~ Scenario 5.5 would ~~be limited to~~ produce ~~275~~ 663.5 MW~~, with the remaining 575 MW as part of Phase II~~ and Scenario 6 would produce 603.9 MW. There would be one laydown area located within the main services complex area occupying approximately 10 acres. In addition, the project may also have within the main services complex a 15 acre construction laydown staging area. In addition to the proposed Calico Solar Project site and construction areas, there are other features and facilities associated with the proposed project (the majority of which are located on the proposed project site or construction laydown area), including:

- Approximately ~~34,000~~ 26,400 SunCatchers for Scenario 5.5 and 24,156 SunCatchers for Scenario 6 and associated equipment and infrastructure within a fenced boundary;
- An onsite, 52 acre main services complex located in the northern portion of the ~~Phase I section of the~~ project site for administration and maintenance activities. The complex would include buildings, parking and access roads (SES 2008f page 3-62 and Figure 3-4). The complex would include three SunCatcher assembly buildings, administrative offices, operations control room, maintenance facilities, parking and access roads and a water treatment complex that would include a water treatment structure, raw water storage tank, demineralized water storage tank, basins and a potable water tank;

- An onsite hydrogen generation system;
- An onsite, 2.8-acre, 850-MW Substation that would deliver the generated electrical power to the existing Pisgah Substation, located generally in the south east corner of the site;
- Twelve to fifteen electrical transmission towers approximately 100 feet high that would be constructed to convey the electricity from the onsite substation to the Pisgah substation;
- Approximately 50 miles of underground 34.5 kV cable;
- Approximately 650 miles of 600V cable;
- Approximately 500 miles of paved and unpaved roads;
- Underground water pipeline;
- Underground hydrogen supply pipelines; and,
- A groundwater well with underground water conveyance piping from the well to the Main Services Complex.

Project, Site, and Vicinity Setting

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

Climate

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

Groundwater

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

Hydrology

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

Soil Erosion Potential

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

Project Water Supply

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

Potable Water

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

Construction Water

Water demands during construction of the project will be relatively light for an effort as large as that proposed. Vertical foundation elements (hollow metal pipes) for the SunCatchers will be inserted into the subsurface using track driven vibratory equipment. The vibratory insertion method eliminates conventional drilling techniques that would generate cuttings that typically require dust suppression for stockpiling, transferring, trucking and disposal of the cuttings. The track mounted equipment will also reduce ground disturbance (rutting) by spreading the load over a larger surface area.

Site construction will be accomplished in two phases, Phase 1 and Phase 2. Phase 1 construction will take place during the first 26-month period, consisting of construction of the primary access routes, the construction laydown areas, the rough grading for the Main Services Complex and the substation sites, as well as the clearing areas disturbed by the construction of each solar group. The total water use for the first 26 months of construction is estimated to be less than 92,107,331 gallons or approximately 282.67 AF.

Phase 2 will take place during construction months 32 through 60. Phase 2 will mostly involve construction of additional access roads and continued solar field development. The total water use during Phase 2 construction (months 32 through 60) is estimated to be less than 103,421,405 gallons or approximately 317.39 AF.

The applicant estimates that during the 60 months of project construction, the water demand for combined construction and dust suppression would be ~~approximately~~ less than 600 AF (**Soil & Water Table 4**). During this 60-month construction period, water use is expected to vary from less than approximately 3.108 million gallons (9.54 AF) per month (month 18), to less than 4.046 million gallons (12.42 AF) per month (after the 34th month).

Soil & Water Table 4
Construction Water Use

Month of Construction	Estimated Volume of Water Required	
	Millions of Gallons	Acre Feet
1	3,278,200	10.06
2	3,278,200	10.06
3	3,369,775	10.34
4	3,811,595	11.70
5	3,915,144	12.02
6	3,915,144	12.02
7	3,823,569	11.73
8	3,823,569	11.73
9	3,823,569	11.73
10	3,823,569	11.73

11	3,823,569	11.73
12	3,823,569	11.73
1st year total	44,509,472	136.59
13	3,823,569	11.73
14	3,549,820	10.89
15	3,549,820	10.89
16	3,549,820	10.89
17	3,549,820	10.89
18	3,108,000	9.54
19	3,108,000	9.54
20	3,108,000	9.54
21	3,108,000	9.54
22	3,108,000	9.54
23	3,359,073	10.31
24	3,359,075	10.31
2nd year total	40,280,997	123.62
25	3,400,702	10.44
26	3,916,160	12.02
27	0	0.00
28	0	0.00
29	0	0.00
30	0	0.00
31	0	0.00
32	0	0.00
33	4,045,919	12.42
34	4,045,921	12.42
35	4,004,928	12.29
36	4,004,300	12.29
3rd year total	23,417,930	71.87
37	4,004,302	12.29
38	4,004,304	12.29
39	4,004,306	12.29
40	4,004,307	12.29
41	4,004,309	12.29
42	4,004,311	12.29
43	3,753,242	11.52
44	3,753,243	11.52
45	3,75,3245	11.52
46	3,753,247	11.52
47	3,753,249	11.52
48	3,623,493	11.12
4th year total	46,415,558	142.44
49	3,623,495	11.12
50	3,623,497	11.12
51	3,623,499	11.12
52	3,623,501	11.12
53	3,623,503	11.12
54	3,623,504	11.12
55	3,623,506	11.12
56	3,108,052	9.54
57	3,108,054	9.54

58	3,108,056	9.54
59	3,108,056	9.54
60	3,108,056	9.54
5th year total	40,904,779	125.53
Construction Total	195,528,736	600.06

Source: SES 2010

Both Scenario 5.5 and Scenario 6 are expected to use less water than shown in the above table which was based on the complete 850 MW project.

Water trucks will be used throughout the duration of the construction phase for the project. Truck filling stations will be located at the Main Services Complex and at various temporary truck filling stations throughout the project site.

Operations Water

Due to the technology proposed for this project (Stirling engines), water use during electric generation will be minimal. The applicant considers site groundwater as "raw" water that will require treatment to remove dissolved solids for SunCatcher mirror wash water applications and additional treatment to meet drinking water quality standards. Water treatment processes identified by the applicant for demineralization are Reverse Osmosis (RO) and ion exchange. Potable water consumption, groundwater treatment, and SunCatcher mirror washing under regular monthly maintenance routines (average) will require less than approximately 15.6 gpm of water per day. A maximum requirement of less than approximately 41 gpm of water per day will be needed during the months when each SunCatcher receives a scrub wash.

Water consumption during operation will be limited to mirror washing (less than 10.3 AFY), water treatment (less than 5.2 AFY), potable use (2.2 AFY), and dust control (less than 2.5 AFY). Additionally, water will be used to generate hydrogen used in the SunCatcher engines. The applicant estimates that less than 205 gallons per day (0.23 AFY) of water will be required to produce a sufficient volume of hydrogen for power plant use. The applicant estimates that the total maximum consumptive use of groundwater for operation of the power plant will be less than approximately 20.4 AFY (see **Soil & Water Table 5**, below).

Soil & Water Table 5
Operations Water Usage Rates

Water Use	Daily Average (gallons per minute)	Daily Maximum (gallons per minute)	Annual Usage (acre-feet)
Equipment Water Requirements			
SunCatcher Mirror Washing	9.3	25.0	10.3
Water Treatment System Discharge			
Brine to Evaporation Ponds	4.7	14.1	5.2
Potable Water Use			
For drinking and sanitary water requirements	1.6	1.9	2.2

Soil Stabilizer			
Groundwater mixed with SoilTac for dust control	1.5	28.6	2.5
Hydrogen Generation			
Electrolysis water requirements	0.1	0.2	0.2
Totals	**17.3**	**69.8**	**20.4**

Notes:
1 - Based on washing 80 percent of the SunCatcher dishes (27,177 dishes) each month with an average of 10.3 gallons of demineralized water per wash and 21 work days per month.
2 - Assumes one 500 gallon water tanker is filled in 20 minutes.
3 - Based on all 34,000 SunCatchers experiencing 9.6 washes per year.
4 - Based on the maximum amount of demineralized water required for mirror washing and assumes a decrease in raw water quality requiring an additional 20 percent of system discharge.
5 - Assumes 17 gallons per person per day for 136 people.
6 - Maximum amount assumes a 20 percent contingency over the Daily Average.
7 - Assumes a six-day work week and average daily usage.
8 - Based on filling a 2,000 gallon tanker truck 6/7 full of water over 1 hour.
9 - Assumes 6:1 mix of water to SoilTac applied to 1,245 acres of road every two years.
10 - Assumes 195 standard cubic feet (scf) of hydrogen generated per year per dish.

Source: SES 2010

Both Scenario 5.5 and Scenario 6 are expected to use less water than shown in the above table which was based on the complete 850 MW project.

Wastewater

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

C.7.4.2 ASSESSMENT OF DIRECT AND INDIRECT IMPACTS AND DISCUSSION OF MITIGATION

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

C.7.4.3 CEQA LEVEL OF SIGNIFICANCE

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

C.7.5 REDUCED ACREAGE ALTERNATIVE

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

C.7.6 AVOIDANCE OF DONATED AND ACQUIRED LANDS ALTERNATIVE

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

C.7.7 NO PROJECT / NO ACTION ALTERNATIVE

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

C.7.8 PROJECT-RELATED FUTURE ACTIONS – SOIL AND WATER RESOURCES

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

C.7.9 CUMULATIVE IMPACT ANALYSIS

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

C.7.10 COMPLIANCE WITH LORS

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

C.7.11 NOTEWORTHY PUBLIC BENEFITS

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

C.7.12 FACILITY CLOSURE

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

C.7.13 RESPONSE TO AGENCY AND PUBLIC COMMENTS

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

C.7.14 PROPOSED CONDITIONS OF CERTIFICATION/MITIGATION MEASURES

STORMWATER CONTROL/FLOOD PROTECTION DESIGN PLANS

SOIL&WATER-8: The project owner shall submit two (2) copies of the 30-percent, 60-percent and 90-percent design drawings for the grading and drainage facilities to the CPM for review and comment. The 30-percent, 60-percent and 90-percent design

drawings for the grading and drainage facilities shall be accompanied by a basis of design report to convey and support the design approach.

To prepare the grading and drainage facilities drawings and accompanying basis of design report, the project owner shall do the following:

1. Conduct an analysis to quantify the design discharges and associated volumes of water, debris, and sediment associated with the 100-year storm at the apex of the fan under current watershed conditions.

2. Conduct a geomorphic and hydraulic analysis to determine the maximum design storm that can be routed through the site utilizing existing fluvial washes that will not result in significant damage to proposed site infrastructure. This analysis should include an estimate of the change in runoff characteristics due to site development and evaluate whether flood control facilities would be needed to regulate flows off-site.
3. Conduct a geomorphic and biologic analysis to determine the minimum design storm that can be routed through the site utilizing existing fluvial washes that will provide the necessary sediment load through the site and "downstream areas" to maintain existing sensitive habitat needs, as described in the *Geomorphic Assessment of Calico Solar Project Site*. This analysis must consider and address the need for fine sand to support the existing sensitive habitat and the potential episodic nature of the associated dune complex evolution that depends upon El Niño events (i.e., wet winters occurring approximately every 3 to 7 years) delivering sediment to the lower fan and the accompanying La Niña events (i.e., dry winters occurring approximately every 3 to 7 years) eroding and transporting fine sands to these dunes through wind action.
4. If necessary, ~~d~~etermine the pass through design storm that can be routed through the site unimpeded to deliver the necessary sediment load through the site to maintain existing sensitive habitat needs in "downstream areas" and not result in significant damage to proposed site infrastructure.
5. Size, locate, and design any ~~each~~ detention basins and flood control structures , if needed, to allow the pass through ~~design~~ storm to move through the site unimpeded while capturing and managing larger ~~design~~ storm flows and related sediment and debris to protect the proposed infrastructure.
6. ~~Convey design of each basin by showing~~Provide supporting calculations and design drawings for flood control and basin designs and include ~~to convey the basin in~~ plan view maps, cross-sections, depth to spillway, amount of freeboard to top of basin, basin volume to spillway, description of sidewall slopes, method of providing pass through flows ~~design storm~~ and related sediment unimpeded, method of providing erosion protection for basins and flood control structures, basin side walls, inlet design, outlet design, spillway design, spillway erosion control, combined outlet maximum flow, transition from outlet to existing downstream fluvial wash, tortoise fence location and design, maintenance of

tortoise fence, maintenance of basin, maintenance of excess sediment in basin from larger flood flows.

7. The project owner shall apply for and receive approval from the Department of Water Resources Division of Safety of Dams (DSOD) for the plans and specifications for the construction of any dam(s) or reservoir(s) that are under DSOD jurisdiction prior to beginning construction.
8. For all flood control basin dams, the project owner shall provide at a minimum:
   - specific locations of basins and dams on appropriate scale map,
   - configuration of all basins and dams including basin-specific cross sections,
   - a description of all materials designed to be used in the construction of the dams,
   - footings designs,
   - designs of cutoff walls,
   - designs of keyways,
   - description and design of drainage pass though methods,
   - flow metering (ability to maintain maximum discharge to that of the maximum on-site flow design) technique and design,
   - method of and design of debris deflection (i.e. trash racks) for each basin,
   - emergency spillway design,
   - pass through pipe outlet energy dissipation method and design, and
   - basin inlet erosion protection.

9. In addition to the criteria discussed above, the basis of design report shall also follow the procedures outlined in the following documents as far as is applicable:
   a. San Bernardino County Drainage Manual and 2007 Development Code (amended, March 25, 2010).
   b. Federal Emergency Management Agency Guidelines for Determining Flood Hazards on Alluvial Fans and Guidelines and Specifications for Flood Hazard Mapping Partners.

The project owner shall prepare a set of design specifications to supplement the 90-percent design drawings. Plans, specifications, computations and other data shall be prepared by persons properly licensed by the State of California. If the 60-percent plans or 90-percent plans and specifications do not comply with the appropriate Conditions of Certification, the necessary changes or revisions to the plans shall be made by the project owner. If the CPM finds that the work described in the plans and specifications conform to the Conditions of Certifications in the Energy Commission Decision and other pertinent LORS, then the project owner shall submit two (2) copies of the 100-percent set for CPM review and approval. All design drawings must be submitted on bound or stapled 24” x 36” size paper.

Verification: Prior to site mobilization, the project owner shall prepare preliminary (30-percent) grading and drainage facilities drawings and accompanying basis of design report for CPM review and approval. No later than 30 days after publication of the Energy Commission Decision, the 60-percent set of design drawings and accompanying

basis of design report shall be submitted to the CPM for review and approval. The project owner shall submit the 90-percent design drawings and accompanying basis of design report to the CPM for review and approval after the person who originally drew the plan or their duly authorized agent addresses the CPM's 60-percent submittal comments and required changes. The 100-percent design drawings and specifications (construction documents) shall be signed and sealed by a Registered Professional Engineer in the State of California and submitted as the final, approved set of construction documents prior to site mobilization. Prior to initiation of site construction, the 100-percent design drawings and specifications (construction documents) shall be submitted along with the final basis of design report signed and sealed by a Registered Professional Engineer and a Registered Professional Geologist in the State of California to the CPM for review and approval.

C.7.16 REFERENCES

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

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SOIL AND WATER RESOURCES – APPENDIX A
ACRONYMS USED IN THE SOIL AND WATER RESOURCES SECTION

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

SOIL AND WATER RESOURCES – APPENDIX B
FACTS FOR WASTE DISCHARGE

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

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SOIL AND WATER RESOURCES – APPENDIX C
REQUIREMENTS FOR WASTE DISCHARGE

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

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SOIL AND WATER RESOURCES – APPENDIX D
MONITORING AND REPORTING PROGRAM FOR SURFACE WATER

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

SOIL AND WATER RESOURCES – APPENDIX E MONITORING AND REPORTING PROGRAM FOR GROUNDWATER (TWO SURFACE IMPOUNDMENTS)

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

SOIL AND WATER RESOURCES – APPENDIX F
RESPONSE TO AGENCY AND PUBLIC COMMENTS

There are no changes to staff's analysis in this section related to the two new reduced acreage alternatives.

C.8 – LAND USE, RECREATION, AND WILDERNESS

Testimony of Negar Vahidi and Susanne Huerta

C.8.1 SUMMARY OF CONCLUSIONS

Energy Commission staff have reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 and associated Exhibits (i.e., Exhibits 114 and 125 related to land use issues) filed September 13, 2010 for the Calico Solar Project.

The conversion of approximately 4,613 acres of land for Scenario 5.5, and 4,244 acres of land for Scenario 6 to support the project's components and activities still could disrupt wilderness resources and recreational activities in established federal, State, and local recreation areas; although the land conversion would be proportionally less (i.e., approximately 26 percent less for Scenario 5.5, and 32 percent for Scenario 6). These impacts would remain at less than significant levels under CEQA.

As with the proposed project, implementation of Scenarios 5.5 and 6 would require a BLM ROW grant and a project-specific plan amendment for consistency with the BLM's CDCA Plan. As discussed in the SSA, construction and operation of the proposed 6,215-acre project would not comply with the BLM's Instruction Memorandum regarding management of donated land and lands acquired by Land and Water Conservation Funds (LWCF), which requires LWCF lands to be managed as avoidance/exclusion areas for land use authorizations that could result in surface disturbing activities (BLM 2009a). The implementation of either Scenario 5.5 or 6 would still impact donated and acquired lands, although the acreage of lands affected would be proportionally less. The proposed 6,215-acre project site would affect donated and acquired lands that include all of land Section 5, and portions of Sections 9 and 17; whereas Scenario 5.5 would only include small corner portions of Sections 5, 9, and 17, and Scenario 6 would only include small corner portions of Sections five and 17. In total, the land sections affected by Scenario 5.5 and 6 would use 96.2 acres of donated and acquired lands, reducing the acreage by 663 acres from the proposed 6,215-acre project site (applicant Exhibit 125). However, because donated and acquired lands are included within the boundaries of both Scenarios 5.5 and 6, these scenarios still are inconsistent with BLM's Interim Policy Memorandum regarding exclusion/avoidance areas.

For purposes of CEQA compliance, the level of significance of each impact of the proposed project on land use resources has been determined and is discussed in detail in Section C.8.4.3 (CEQA Level of Significance) of the SSA. Similar to the proposed 6,215-acre project, Scenario 5 and 6 impacts on 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. Although, it is important to note that for Scenarios 5.5 and 6, the only LORS inconsistency is related to a federal LORS related to the use of small portions of donated and acquired land sections (as discussed above).

Because the implementation of either Scenarios 5.5 or 6 would have no impacts on agricultural resources, rangelands, horses and burros, these scenarios would have no potential to contribute to cumulative impacts in this respect. However, similar to the proposed project, the land conversion resulting from implementation of these scenarios would combine with other past and reasonably foreseeable future projects to substantially reduce scenic values of wilderness areas and recreational resources in the Mojave Desert and southern California desert region and therefore, would result in a significant and unavoidable cumulative land use impact in this regard.

In summary, CEQA impact conclusions related to implementation of Scenario 5.5 or 6 are not different than those for the proposed project, although a reduction in the project acreage of 26 and 32 percent, respectively, would reduce the intensity of land use impacts proportionally. Similar to the proposed project, no Conditions of Certification are proposed for Scenarios 5.5 or 6.

C.9 – NOISE AND VIBRATION

Testimony of Erin Bright

C.9.1 SUMMARY OF CONCLUSIONS

Energy Commission staff have reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 for the Calico Solar Project in accordance with the California Environmental Quality Act (CEQA). Based on this review and the analysis completed by staff on proposed project and the Reduced Acreage Alternative in the Supplemental Staff Assessment, staff concludes that, similar to the proposed project, neither of the two additional reduced acreage scenarios would cause a significant adverse direct or indirect impact or contribute to a cumulative noise impact on any nearby sensitive receptors.

Although the proposed reduced acreage scenarios 5.5 and 6 represent a reduction in the project acreage of 26 and 32 percent respectively, staff's conclusions do not change. Staff concludes that the Calico Solar Project can be built and operated in compliance with all applicable noise and vibration laws, ordinances, regulations, and standards and, if built in accordance with the conditions of certification proposed in the Supplemental Staff Assessment, would produce no significant adverse noise impacts on people within the affected area, either direct, indirect, or cumulative.

C.10 – SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Testimony of Kristin Ford

C.10.1 SUMMARY OF CONCLUSIONS

Energy Commission staff (hereafter referred to as "staff") have reviewed the Calico Solar Project in accordance with the California Environmental Quality Act (CEQA). Staff concludes that the Calico Solar Project would not under CEQA cause a significant adverse direct or indirect impact or contribute to a cumulative socioeconomic impact on the area's housing, schools, parks and recreation, police, emergency medical services, or hospitals, because the project's construction and operation workforce currently resides in the regional or local labor market area. Staff also concludes that the project would not require the construction of new or altered public facilities. The construction and operation of the proposed project would not result in any disproportionate socioeconomic impacts to low-income or minority populations. Gross public benefits from the project include capital costs, construction and operation payroll, and sales tax from construction and operation spending. No Conditions of Certification are proposed.

In addition, staff reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 for the Calico Solar Project in accordance with the California Environmental Quality Act (CEQA). Based on this review and the analysis completed by staff on proposed project and the Reduced Acreage Alternative in the Supplemental Staff Assessment, staff concludes that, similar to the proposed project, neither of the two additional reduced Calico Solar Project would cause a significant adverse direct or indirect impact or contribute to a cumulative socioeconomic impact on the area's housing, schools, parks and recreation, police, emergency medical services, or hospitals, because the project's construction and operation workforce currently resides in the regional or local labor market area.

Although the proposed reduced acreage scenarios 5.5 and 6 represent a reduction in the project acreage of 26 and 32 percent respectively, staff's conclusions do not change. The construction and operation of either of the two reduced acreage alternatives would not result in any disproportionate socioeconomic impacts to low-income or minority populations. Gross public benefits from the project include capital costs, construction and operation payroll, and sales tax from construction and operation spending.

C.11 – TRAFFIC AND TRANSPORTATION

Testimony of Marie McLean

C.11.1 SUMMARY OF CONCLUSIONS

Energy Commission staff has reviewed the document, *Applicant's Updated Reduced Project Boundary Scenarios 5.5 and 6 Information*, which was filed on September 10, 2010, as required by the California Environmental Quality Act (CEQA).

Based on the review of the applicant's updated project boundary scenarios as well as on a review of the Traffic and Transportation analysis and the and the Reduced Acreage Alternative contained in the *Supplemental Staff Assessment, Part II*, staff concludes that neither the Reduced Project Boundary Scenario 5.5 nor the Reduced Project Boundary Scenario 6 would result in a significant adverse impact or contribute to a cumulative impact on the state and county roads used to access the project.

Instead, the proposed reduced acreage scenarios represent a reduction in the project's acreage of either 26 percent (Scenario 5.5) or 32 percent (Scenario 6). Consequently, if either scenario were implemented, the demand for workers could decrease. As a result, the impacts on state and county roads could be reduced. However, should this reduction occur, it would not eliminate the need for any condition of certification pertaining to roadways included in the *Supplemental Staff Assessment, Part II.*

Staff also notes that the reduction in acreage will result in a decrease in the number of Sun Catchers used in the project. Staff notes that this reduction in the number of Sun Catchers does not change the necessity for prevention of glare from Sun Catchers to BNSF train crews as well as motorists on Hector Road, Route 66, and Interstate 40.

Consequently, the conditions of certification included in the *Supplemental Staff Assessment, Part II*, still apply and no new conditions of certification are proposed as a result of information contained in the document, *Applicant's Updated Reduced Project Boundary Scenarios 5.5 and 6 Information*.

C.12 – TRANSMISSION LINE SAFETY AND NUISANCE

Testimony of Obed Odoemelam, Ph.D.

C.12.1 SUMMARY OF CONCLUSIONS

The Energy Commission staff has reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 for the Calico Solar Project in accordance with the California Environmental Quality Act (CEQA). Based on this review and the analysis completed by staff on proposed project and the Reduced Acreage Alternatives in the Supplemental Staff Assessment, staff concludes that, as with the proposed project, neither of the two new reduced project alternatives would produce any significant adverse direct or indirect impact or contribute to a cumulative impacts regarding the needed transmission line or the on-site switchyard from which the line would extend to the SCE's Pisgah Substation.

Staff's conclusions reflects the fact that the transmission line for the proposed project or either of the described Scenario 5.5 and 5.6 alternatives would still be designed and operated according to SCE's guidelines which conform to laws, ordinances, regulations and standards applicable to transmission line safety and nuisance. The same four conditions of certification for the proposed project would be required for the two new project versions described as Scenarios 5.5 and 6.

C.13 – VISUAL RESOURCES

Testimony of William Kanemoto

C.13.1 SUMMARY OF CONCLUSIONS

Energy Commission staff have reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 for the Calico Solar Project in accordance with the California Environmental Quality Act (CEQA). Based on this review and the analysis completed by staff on the proposed project and the Reduced Acreage Alternative in the Supplemental Staff Assessment, staff concludes that neither of the two additional reduced project boundary alternatives of the Calico Solar Project would alter the conclusions of the Supplemental Staff Assessment, nor reduce potential visual impacts of the project to less-than-significant levels. Both Scenarios 5.5 and 6 would reduce the overall distance of project frontage in the immediate visual foreground of Highway I-40, and both would reduce the overall project area visible at middle-ground distances from I-40 and Route 66. However, under both reduced scenarios, the amount of project highway frontage and visible middle-ground-distance project area would remain very substantial. Roughly two miles of highway frontage would be exposed to views of Sun Catchers in the immediate visual foreground; and several square miles of Sun Catchers would remain visible to highway viewers at middle-ground distances. The project would thus remain visually highly dominant, and continue to obstruct views of the background mountains along substantial lengths of highway along the project boundary. In the context of moderately high viewer sensitivity of affected viewpoints on I-40 and Route 66, these impacts would be significant and unavoidable.

Although the proposed reduced acreage scenarios 5.5 and 6 represent a reduction in the project acreage of 26 and 32 percent respectively, staff's conclusions thus would not change. Recommended Conditions of Certification would also remain as presented previously in the Supplemental Staff Assessment.

C.14 – WASTE MANAGMENT

Testimony of Ellie Townsend-Hough

C.14.1 SUMMARY OF CONCLUSIONS

Energy Commission staff have reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 for the Calico Solar Project in accordance with the California Environmental Quality Act (CEQA). Based on this review and the analysis completed by staff on the proposed project and the Reduced Acreage Alternative in the Supplemental Staff Assessment, staff concludes that, similar to the proposed project, neither of the two additional reduced Calico Solar Project alternatives would cause a significant adverse direct or indirect impact or contribute to a cumulative waste management impact if the applicant's and staff's proposed mitigation measures are implemented.

Although the proposed reduced acreage scenarios 5.5 and 6 represent a reduction in the project acreage of 26 and 32 percent respectively, staff's conclusions do not change. The construction and operation of either of the two reduced acreage alternatives would not result in any real or significant changes in the amounts of hazardous and non-hazardous waste generated during construction and operation of the project. The impacts would be reduced to less than significant levels with the implementation of both the applicant's and staff's currently proposed mitigation measures. No additional Conditions of Certification are proposed.

C.15 – WORKER SAFETY AND FIRE PROTECTION

Testimony of Alvin Greenberg, Ph.D.

C.15.1 SUMMARY OF CONCLUSIONS

Energy Commission staff have reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 for the Calico Solar Project in accordance with the California Environmental Quality Act (CEQA). Based on this review and the analysis completed by staff on the proposed project and the Reduced Acreage Alternative in the Supplemental Staff Assessment, staff concludes that, similar to the proposed project, these two additional reduced acreage scenarios would cause a significant adverse direct and indirect impact and contribute to a cumulative fore [protection impact. However, as with the proposed project, the significant impacts can be reduced to a level of insignificance if staff's proposed mitigation measures are implemented.

Although the proposed reduced acreage scenarios 5.5 and 6 represent a reduction in the project acreage of 26 and 32 percent respectively, staff's conclusions do not change. The construction and operation of either of the two reduced acreage alternatives would not result in any real or significant changes in the amounts or identities of flammable materials that would be used or stored at the site or of the risks posed to workers or to the risk of fire. The impacts on the San Bernardino County Fire department and the public as a result of "draw-down" should a fire occur at the proposed power plant site would be reduced to a less than significant level with the implementation of staff's currently proposed mitigation measures. No additional Conditions of Certification are proposed.

D.1 – FACILITY DESIGN

Testimony of Shahab Khoshmashrab

D.1.1 SUMMARY OF CONCLUSIONS

Energy Commission staff have reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 for the Calico Solar Project. Based on this review and the analysis completed by staff on proposed project and the Reduced Acreage Alternative in the Supplemental Staff Assessment, staff concludes that, similar to the proposed project, the design, construction, and eventual closure of the two additional reduced acreage scenarios would likely comply with applicable engineering laws, ordinances, regulations and standards. The proposed conditions of certification in the Supplemental Staff Assessment would ensure compliance with these laws, ordinances, regulations and standards for either the proposed project or either reduced acreage scenario.

Facility Design is not intended to address environmental impacts under the California Environmental Quality Act.

D.2 – GEOLOGIC STABILITY

Testimony of Dal Hunter, Ph.D., C.E.G.

D.2.1 SUMMARY OF CONCLUSIONS

(NOTE: The GEOLOGIC STABILITY issue area has been addressed as part of Section C.4 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES. The summary below is from that environmental analysis. Please refer to that section for the full analysis.)

Energy Commission staff have reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 for the Calico Solar Project in accordance with the California Environmental Quality Act (CEQA). Staff also reviewed the two figures from the Applicant's Submittal of Revised Drainage Layout Figures, dated September 14, 2010, showing the revised drainage layouts for Scenario 5.5 and Scenario 6. These figures show existing drainage patterns/post-construction flow for the project site overlain on topographic maps from 1992/1993. These diagrams show the basins to be located on the northern boundary of the site are no longer proposed and that there will no longer be embankment dams located in this area. The information presented does not rule out however, whether embankment dams may be required on other portions. Staff believes Condition of Certification **GEO-2** should remain as a condition of compliance to ensure that if jurisdictional embankments are required, the applicant will comply with appropriate LORS. The applicant will also be required to comply with the revised version of Condition of Certification **Soil&Water-8** which would require compliance with appropriate design criteria.

Based on this review and the analysis completed by staff on the proposed project and the Reduced Acreage Alternative in the Supplemental Staff Assessment, staff concludes that, similar to the proposed project, neither of the two additional reduced acreage scenarios would cause a significant adverse direct or indirect impact or contribute to a cumulative geological or paleontological impact if the applicant's and staff's proposed mitigation measures are implemented.

Although the proposed reduced acreage scenarios 5.5 and 6 represent a reduction in the project acreage of 26 and 32 percent respectively, staff's conclusions do not change with respect to the remaining geology and paleontology issues. The construction and operation of either of the two reduced acreage alternatives would not result in any real or significant changes in the geologic or paleontologic impacts during construction and operation of the project. The impacts would be reduced to less than significant levels with the implementation of both the applicant's and staff's currently proposed mitigation measures. No additional Conditions of Certification are proposed.

D.3 – POWER PLANT EFFICIENCY

Testimony of Shahab Khoshmashrab

D.3.1 SUMMARY OF CONCLUSIONS

Energy Commission staff have reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 for the Calico Solar Project in accordance with the California Environmental Quality Act (CEQA). Based on this review and the analysis completed by staff on proposed project and the Reduced Acreage Alternative in the Supplemental Staff Assessment, staff concludes that, similar to the proposed project, neither of the two additional reduced acreage scenarios would cause a significant adverse impact.

Although the proposed reduced acreage scenarios 5.5 and 6 represent a reduction in the project acreage of 26 and 32 percent respectively, the land use efficiency figures would not change because the total output in MW would reduce proportionally. Also, staff concludes that the Calico Solar Project would produce no significant adverse impacts on energy supplies or resources, would not require additional sources of energy supply, and would not consume energy in a wasteful or inefficient manner, either directly, indirectly, or cumulatively.

D.4 – POWER PLANT RELIABILITY

Testimony of Shahab Khoshmashrab

D.4.1 SUMMARY OF CONCLUSIONS

Energy Commission staff have reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 for the Calico Solar Project in accordance with the California Environmental Quality Act (CEQA).

Because the proposed reduced acreage scenarios 5.5 and 6 represent a reduction in the project output of 26 and 32 percent respectively, their impacts on the SCE grid would be proportionately less.

Similar to the originally-proposed project, staff cannot determine what the actual availability factor for the long term operation of the reduced acreage scenarios would be, but it believes that with more operational experience we will have a better idea of the long-term availability factor of this technology.

D.5 – TRANSMISSION SYSTEM ENGINEERING

Testimony of Sudath Edirisuriya and Mark Hesters

D.5.1 SUMMARY OF CONCLUSIONS

The Energy Commission staff has reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 for the Calico Solar Project. Based on this review and the analysis completed by staff on proposed project and the Reduced Acreage Alternatives in the Supplemental Staff Assessment, staff concludes that, as with the proposed project, the two new reduced acreage scenario's outlet lines and termination are acceptable and would comply with all applicable laws, ordinances, regulations, and standards.

E - GENERAL CONDITIONS
INCLUDING
COMPLIANCE MONITORING AND CLOSURE PLAN

Prepared by: Mary Dyas

E.1 INTRODUCTION

The project's General Compliance Conditions of Certification, including Compliance Monitoring and Closure Plan (Compliance Plan) have been established as required by Public Resources Code section 25532. The plan provides a means for assuring that the facility is constructed, operated, and closed in compliance with public health and safety, environmental, and other applicable regulations, guidelines, and conditions adopted or established by the California Energy Commission and specified in the written decision on the Application for Certification or otherwise required by law. The Public Resources Code section 25806(d), states that renewable energy projects are exempt from paying an annual compliance fee.

Energy Commission staff have reviewed the Applicant's Submittal of Updated Reduced Project Boundary Scenarios 5.5 and 6 Information filed on September 10, 2010 for the Calico Solar Project. Based on this review and the analysis completed by staff on proposed project and the Reduced Acreage Alternative in the Supplemental Staff Assessment, staff concludes that no changes are necessary in the General Conditions or the Compliance Monitoring and Closure Plan.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION

***For the CALICO SOLAR** (Formerly SES Solar One)*

Docket No. 08-AFC-13

PROOF OF SERVICE
(Revised 8/3/10)

APPLICANT
Felicia Bellows
Vice President of Development
& Project Manager
Tessera Solar
4800 North Scottsdale Road,
#5500
Scottsdale, AZ 85251
felicia.bellows@tesserasolar.com

CONSULTANT
Angela Leiba
AFC Project Manager
URS Corporation
1615 Murray Canyon Rd.,
#1000
San Diego, CA 92108
angela_leiba@URSCorp.com

APPLICANT'S COUNSEL
Allan J. Thompson
Attorney at Law
21 C Orinda Way #314
Orinda, CA 94563
allanori@comcast.net

Ella Foley Gannon, Partner
Bingham McCutchen, LLP
Three Embarcadero Center
San Francisco, CA 94111
ella.gannon@bingham.com

INTERESTED AGENCIES
California ISO
e-recipient@caiso.com

Jim Stobaugh
BLM – Nevada State Office
P.O. Box 12000
Reno, NV 89520
jim_stobaugh@blm.gov

Rich Rotte, Project Manager
Bureau of Land Management
Barstow Field Office
2601 Barstow Road
Barstow, CA 92311
richard_rotte@blm.gov

Becky Jones
California Department of
Fish & Game
36431 41st Street East
Palmdale, CA 93552
dfgpalm@adelphia.net

INTERVENORS
County of San Bernardino
Ruth E. Stringer,
County Counsel
Bart W. Brizzee,
Deputy County Counsel
385 N. Arrowhead Avenue,
4th Floor
San Bernardino, CA 92415-
bbrizzee@cc.sbcounty.gov

California Unions for Reliable
Energy (CURE)
c/o: Loulena A. Miles,
Marc D. Joseph
Adams Broadwell Joseph
& Cardozo
601 Gateway Boulevard, Ste. 1000
South San Francisco, CA 94080
lmiles@adamsbroadwell.com

Defenders of Wildlife
Joshua Basofin
1303 J Street, Suite 270
Sacramento, California 95814
e-mail service preferred
jbasofin@defenders.org

Society for the Conservation of
Bighorn Sheep
Bob Burke & Gary Thomas
P.O. Box 1407
Yermo, CA 92398
cameracoordinator@sheepsociety.com

Basin and Range Watch
Laura Cunningham &
Kevin Emmerich
P.O. Box 70
Beatty, NV 89003
atomictoadranch@netzero.net

*indicates change

INTERVENORS CONT.

Patrick C. Jackson
600 N. Darwood Avenue
San Dimas, CA 91773
e-mail service preferred
ochsjack@earthlink.net

Gloria D. Smith, Senior Attorney
Sierra Club
85 Second Street, Second floor
San Francisco, CA 94105
gloria.smith@sierraclub.org

Newberry Community
Service District
Wayne W. Weierbach
P.O. Box 206
Newberry Springs, CA 92365
newberryCSD@gmail.com

*Cynthia Lea Burch
Steven A. Lamb
Anne Alexander
Katten Muchin Rosenman LLP
2029 Century Park East,
Ste. 2700
Los Angeles, CA 90067-3012
Cynthia.burch@kattenlaw.com
Steven.lamb@kattenlaw.com
Anne.alexander@kattenlaw.com

ENERGY COMMISSION

ANTHONY EGGERT
Commissioner and Presiding Member
aeggert@energy.state.ca.us

JEFFREY D. BYRON
Commissioner and Associate Member
jbyron@energy.state.ca.us

Paul Kramer
Hearing Officer
pkramer@energy.state.ca.us

Lorraine White, Adviser to
Commissioner Eggert
e-mail service preferred
lwhite@energy.state.ca.us

Kristy Chew, Adviser to
Commissioner Byron
e-mail service preferred
kchew@energy.state.ca.us

Caryn Holmes
Staff Counsel
cholmes@energy.state.ca.us

Steve Adams
Co-Staff Counsel
sadams@energy.state.ca.us

Christopher Meyer
Project Manager
cmeyer@energy.state.ca.us

Jennifer Jennings
Public Adviser
publicadviser@energy.state.ca.us

*indicates change

DECLARATION OF SERVICE

I, Sabrina Savala, declare that on September 17, 2010, I served and filed copies of the attached Supplemental Staff Assessment Addendum for the Proposed Calico Solar Project, dated September 17, 2010. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: [www.energy.ca.gov/sitingcases/solarone].

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(*Check all that Apply*)

FOR SERVICE TO ALL OTHER PARTIES:

x ____ sent electronically to all email addresses on the Proof of Service list;

____ by personal delivery;

____ by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses NOT marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

____ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (***preferred method***);

OR

____ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 08-AFC-13
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

Original Signed by:
Sabrina Savala

*indicates change