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July 29, 2010

California Energy Commission
Attn: Docket Office, 08-AFC-13
1516 Ninth Street
Sacramento, CA 95814

Re: Calico Solar; Docket No. 08-AFC-13

Dear Docket Clerk:

Please process the enclosed REBUTTAL TESTIMONY OF SCOTT CASHEN ON BEHALF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY ON BIOLOGICAL RESOURCES FOR THE CALICO SOLAR PROJECT, conform the copy of the enclosed letter, and return the copy in the envelope provided.

Thank you.

Sincerely,

/s/

Loulena A. Miles

LAM:bh
Enclosures

2309-084a

STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the **CALICO SOLAR PROJECT** (formerly SES Solar One)	Docket No. 08-AFC-13

REBUTTAL TESTIMONY OF SCOTT CASHEN ON BEHALF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY ON BIOLOGICAL RESOURCES FOR THE CALICO SOLAR PROJECT

July 29, 2010

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Attorneys for the CALIFORNIA
UNIONS FOR RELIABLE ENERGY

I am an environmental biologist with 18 years of professional experience in wildlife ecology, forestry, and natural resource management. For the past 10 years I have served as an environmental consultant focusing on biological resource investigations. I have additional professional experience as a wildlife researcher, consulting forester, and instructor of wildlife management for the Pennsylvania State University. My educational background includes a B.S. in Resource Management from the University of California at Berkeley, and a M.S. in Wildlife and Fisheries Science from the Pennsylvania State University.

The testimony contained herein is based on my knowledge and experience; my review of environmental documents pertaining to the Project; information presented in scientific literature; site visits; and consultations with numerous biological resource experts. The information gathered from these sources has led me to the following conclusions:

1. The Project would have an unmitigated, significant impact on the State and federally threatened desert tortoise and it would cause further decline of the species.
2. The Project would have a significant adverse impact on numerous other special-status plant and animal species, including species protected by the Endangered Species Act and West Mojave Plan.
3. The Project would jeopardize the continued existence of at least two special-status plant species.
4. The Project would cause irreparable damage to a healthy desert ecosystem.
5. The Project would compromise the ecological integrity of the surrounding conservation areas (e.g., Pisgah ACEC, Ord-Rodman DWMA, and Cady Mountains Wilderness Study Area).
6. The Supplemental Staff Assessment (SSA) has not provided sufficient information on many of the sensitive biological resources that would (or might) be affected by the Project.
7. The Project's direct, indirect, and cumulative impacts on many sensitive biological resources have not been thoroughly analyzed.
8. Many of the measures that have been proposed to avoid, minimize, or compensate for Project impacts would not mitigate Project impacts below the significance threshold.
9. The Project would not comply with the West Mojave Plan.

In the subsequent sections I provide more specific discussion of the factors that led me to these conclusions.

I. THE PROJECT WOULD CAUSE UNMITIGABLE DAMAGE TO A VERY HEALTHY DESERT ECOSYSTEM

The site for the proposed Calico Solar Project ("Project") contains thousands of acres of land within a relatively undisturbed portion of the Mojave Desert.[1] This land contains a large block of habitat that supports many unique plant and animal species, including the Nelson's bighorn sheep, Mojave fringe-toed lizard, and golden eagle. It is known to contain 282 acres of Waters of the State, 9 special-status plant species, and at least 1 sensitive natural community. In contrast to many other regions of the Mojave Desert, the site has a relatively large and healthy population of desert tortoises occupying some of the highest quality habitat remaining for the species.[2] The proposed Project would have an adverse affect on all of these resources. The ecological consequences of eliminating a broad expanse of relatively undisturbed Mojave Desert habitat cannot be mitigated.

The Supplemental Staff Assessment ("SSA") makes numerous references to the ecological values of the site and the anticipated consequences of the Project. It concludes the Project area supports a "broad diversity of wildlife species" and a "diverse assemblage of annual and perennial herbs."[3] It also notes that the Project site contains "a number of unique features" that are essential for "habitat specialists," and that unique genetic variants of several species have been documented in the region.[4] According to the SSA, the overall effects to any wildlife within the project perimeter are expected to be ***severe***. [5]

Although the SSA makes clear that the Project site contains a high degree of biodiversity and ecological function,[6] ecosystems are complicated entities with numerous components and interacting processes that are difficult to assess. Given numerous variables, many monitoring programs utilize indicators of ecosystem or population condition, rather than measuring the specific processes or species themselves.[7] Given the complexity of the Project site and the dearth of biological information generated so far, I have utilized this technique for the Project site. And, because birds occupy a wide diversity of ecological niches in desert habitat, they serve as good indicators of the health of the larger ecosystem in which they reside.[8] Therefore, the conclusions below are based on a commonly utilized monitoring program for birds.

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[1] SSA, p. C.2-1.
[2] Nussear, K.E., Esque, T.C., Inman, R.D., Gass, Leila, Thomas, K.A., Wallace, C.S.A., Blainey, J.B., Miller, D.M., and Webb, R.H., 2009, Modeling habitat of the desert tortoise (*Gopherus agassizii*) in the Mojave and parts of the Sonoran Deserts of California, Nevada, Utah, and Arizona: U.S. Geological Survey Open-File Report 2009-1102, 18 p.
[3] SSA, p. C.2-20, 23.
[4] SSA, p. C.2-23.
[5] SSA, p. C.2-2.
[6] E.g., SSA, p. C.2-23.
[7] Belnap, Jayne, Webb, R.H., Miller, D.M., Miller, M.E., DeFalco, L.A., Medica, P.A., Brooks, M.L., Esque, T.C., and Bedford, D.R., 2008, Monitoring ecosystem quality and function in arid settings of the Mojave Desert: U.S. Geological Survey Scientific Investigations Report 2008-5064, 119 p.
[8] CalPIF (California Partners in Flight). 2009. Version 1.0. The Desert Bird Conservation Plan: a Strategy for Protecting and Managing Desert Habitats and Associated Birds in California. California Partners in Flight. http://www.prbo.org/calpif/plans.html.

California Partners In Flight ("CalPIF") has designed an ecological monitoring program and conservation plan for the Mojave and Colorado Deserts. The program established several criteria to select a suite of 15 "focal species," whose requirements define different spatial attributes, habitat characteristics, and management regimes representative of a healthy desert system.[9]

Of the 15 focal species identified by CalPIF, I excluded one, Gila woodpecker, from my analysis because the Project site is well outside of the species' known range. The Project site appears to be outside of the range of at least two of the other focal species, but I included them in the analysis to prevent what might be perceived as a biased approach. As a result, I made a conservative assumption that a maximum of 14 focal species *could* occur at the Project site. I then used the list of bird species provided in the Biological Resources Technical Report and SSA to tally the number of focal species detected on the Project site by the Applicant. Because the Applicant did not conduct focused bird surveys, but instead relied on incidental detections of birds made during other field efforts, the Applicant's information provides the *minimum* number of focal species present on the Project site (i.e., additional focal species may be present).[10]

Through this investigation I determined that at least 8 of the possible 14 focal species (57%) occur on the Project site (excluding the transmission line corridor).[11] This represents one of the highest relative percentages of focal species occurrence reported by CalPIF contributors.[12] Based on the conservation strategy established by CalPIF, this represents an extremely "healthy" system, one that cannot be mitigated if destroyed.

II. WILDLIFE MOVEMENT AND LANDSCAPE CONNECTIVITY IMPACTS ARE NOT ACCURATELY OR ADEQUATELY ANALYZED IN THE SSA

The ability to move across the landscape is essential for many species, especially those that occur as metapopulations. A "metapopulation" is a population that has a spatially discrete distribution, and for which at least one or more local populations has a non-trivial probability of extinction.[13] Desert tortoise, bighorn sheep, and Mojave fringe-toed lizards all exhibit a metapopulation structure. Maintaining the ability for these species to

[9] *Id.*
[10] AFC, p. 5.6-4.
[11] Bendire's Thrasher, Burrowing Owl, Common Raven, Black-throated Sparrow, Ash-throated flycatcher, Phainopepla, Ladder-backed Woodpecker, LeConte's Thrasher. The SSA reports a "high" potential for an additional focal species, the Black-tailed gnatcatcher.
[12] *See* Figure 5-16 of CalPIF (California Partners in Flight). 2009. Version 1.0. The Desert Bird Conservation Plan: a Strategy for Protecting and Managing Desert Habitats and Associated Birds in California. California Partners in Flight. http://www.prbo.org/calpif/plans.html.
[13] McCullough DR. 1996. Introduction. Pages 1-10 in DR McCullough, editor. Metapopulations and Wildlife Conservation. Island Press, Washington (DC).

move across the landscape (i.e., connectivity) is the key determinant in the fate of each metapopulation, and ultimately the entire population.[14]

The SSA failed to analyze the significance of the Project's impact on the landscape-level connectivity necessary to maintain viable metapopulations. In my judgment, this is a fatal flaw in the biological analysis for the following three reasons.

First, Staff originally concluded the Project would hinder east-west movement for species such as the desert tortoise due to the Project's proximity to the Cady Mountains.[15] Staff has now concluded that the modified Project design will provide an east-west movement corridor along the northern boundary of the Project site—even though there has been ***no analysis to support this conclusion***.

A particular species' use of a corridor is dependent on many factors. The first is the particular attributes of the corridor itself. Some species avoid habitat edges, and will only use corridors with a wide band of habitat unscathed by edge effects. Other features such as length, bottlenecks (i.e., narrowings), gaps, and the presence of predators or aggressive competitors contribute to a particular corridor's viability.[16] The staff did not conduct an assessment of any of these features. Instead, it simply assumed additional space between the Project fence and the Cady Mountains would provide a viable corridor for motile species. Research studies have demonstrated *potential* mobility does not always translate into *realized* mobility.[17] For example, Diamond (1972, 1973) concluded that certain tropical forest birds were reluctant to even approach edges, much less fly across non-forest gaps. Diamond's study (and others that followed) demonstrated that just because an organism *can* move from one location to another, does not mean that it *will*. Consequently, reliance on particular species' *potential* mobility to support corridor use does not support staff's conclusion that Project impacts to east-west wildlife movement would be less than significant.

Unfortunately, the modified Project design does not ameliorate Project impacts. The area along the northern boundary of the new Project would possess many features that are likely to preclude or be hazardous to wildlife movement. These include the bottlenecks that would be present around rock outcrops and the unnatural levels of debris that would be collected in the numerous retention basins (which are located in the "corridor"). Species that are undeterred by these barriers might instead be deterred by Project noise, which is estimated to be intolerable to some species, and nearly continuous activity at the site due to SunCatcher maintenance. Any smaller animals (e.g., tortoises and lizards) that

[14] Lidicker WZ Jr, WD Koenig. 1996. Responses of Terrestrial Vertebrates to Habitat Edges and Corridors. Pages 85-109 in DR McCullough, editor. Metapopulations and Wildlife Conservation. Island Press, Washington (DC).
[15] SA, p. C.2-94.
[16] Lidicker WZ Jr, WD Koenig. 1996. Responses of Terrestrial Vertebrates to Habitat Edges and Corridors. Pages 85-109 in DR McCullough, editor. Metapopulations and Wildlife Conservation. Island Press, Washington (DC).
[17] *See* studies cited in Lidicker WZ Jr, WD Koenig. 1996. Responses of Terrestrial Vertebrates to Habitat Edges and Corridors. Pages 85-109 in DR McCullough, editor. Metapopulations and Wildlife Conservation. Island Press, Washington (DC).

attempt the journey along the long northern fence line would be subject to heavy predation pressure from ravens, coyotes, and other predators that are known to use edges or that otherwise benefit from human disturbance (e.g., perching birds).[18]

Second, the SSA concluded Project fencing would result in a permanent barrier to north-south movement for the entire Project site. However, it concluded impacts to wildlife movement from construction and operation of the Project would be less than significant with mitigation even though it provided ***no mitigation*** for north-south movement, and no discussion of how this movement would be maintained after Project development.

Lastly, Staff's assessment of impacts—which was made without dedicated analysis—contradicts two studies that ***were based*** on dedicated analysis.[19] Based on these studies, in addition to the numerous issues I listed above, it is my professional opinion that the Project would have a significant unmitigated impact on wildlife movement. Furthermore, it is my professional opinion that the impact would be so significant that it would compromise the metapopulation dynamics necessary to maintain viable populations of several species.

a. The SSA Does Not Adequately Consider the Impact to Terrestrial Vertebrates From Fragmentation Caused by the Project

Even if wildlife corridors are utilized for dispersal to the extent expected, the functions provided by the corridors may not alleviate the adverse, *ecosystem-level* effects of an action. The SSA failed to predict, or even make an attempt to assess, the integrity of the resulting ecosystem if the Project was constructed. Edges generated by anthropogenic disturbance promote introduced plant and animal species, which may affect desert tortoises and other native species in adjacent areas.[20] Other potentially harmful activities that likely occur in greater numbers near human-induced edges include illegal dumping of garbage and toxic wastes; release of ill tortoises; vandalism, handling and harassing of tortoises; illegal collection of tortoises; and fire.[21] These numerous direct and indirect adverse effects may impact desert tortoise populations two miles or more away.[22]

Adverse effects from habitat edges and fragments are not limited to desert tortoises. Changes in broad patterns of resource patches can insidiously disrupt resource availability and resulting population functions in ways that would not become evident by examining merely local expressions of habitat conditions and occurrence of species. Individual components and forces of landscapes do not act in isolation; rather they are mutually determining. As a result, disruptions to populations and habitats alike can "unravel" ecological processes, biotic communities, and natural disturbance regimes.

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[18] Boarman WI. 2002. Threats to Desert Tortoise Populations: A Critical Review of the Literature. U.S. Geological Survey, Western Ecological Research Center. Sacramento (CA): 86 p.
[19] Hannah et. al 2009 and Spencer et al. 2010.
[20] Boarman WI, M. Sazaki. 2006. A highway's road-effect zone for desert tortoises (*Gopherus agassizii*). Journal of Arid Environments 65:94-101.
[21] Boarman WI. 2002. Threats to Desert Tortoise Populations: A Critical Review of the Literature. U.S. Geological Survey, Western Ecological Research Center. Sacramento (CA): 86 p.
[22] *Id.*

Whereas the specific responses of most ecosystems that incur disturbances are difficult to predict, they need to be carefully considered when formulating impact analyses and mitigation. The SSA lacks these fundamental components.

In conclusion, the SSA provided a flawed impact assessment, primarily because it lacked a scientific basis for the predicted wildlife responses, and because it did not consider how the Project would change the synergistic interactions among species and their environment. These are accepted, fundamental requirements before a project of this magnitude can be considered.

III. THE SSA FAILS TO ADEQUATELY ANALYZE AND MITIGATE IMPACTS TO DESERT TORTOISE

The USGS has generated a model to predict desert tortoise habitat quality. The Project's Biological Assessment (BA) used the model to depict desert tortoise habitat potential in the Project region. The map that was presented in the BA shows a large swath of extremely high quality habitat (i.e., a score of 0.9 out of a possible 1.0) centered on the Project site. Although the model has limitations, the various survey data provided by the Applicant have validated the high quality desert tortoise habitat present on the Project site. Combined, the model and the Applicant's data indicate the Project would have a direct impact on at least 4,075 acres of extremely high quality desert tortoise habitat and an additional 2,140 acres of moderately suitable desert tortoise habitat. The USGS model shows few other large blocks of land with equivalently high quality habitat in the entire Project region.[23] Not only would the Project eliminate a considerable portion of this high quality habitat, but it would also **completely sever its connectivity**. An action of this magnitude would impede recovery of a species that is known to require landscape-level connectivity, and it could very easily lead to local extinctions. Given the scarcity of similar high quality habitat in the region, and given the SSA's failure to ensure impacts to extremely high quality habitat would be offset by compensatory mitigation, it is my professional opinion that the Project would have a significant, unmitigated direct impact on the desert tortoise.

Population Demographics and Health

The Applicant's 2010 surveys documented 104 individual tortoises, including 88 adults, 1 subadult, and 15 juveniles. Of these, only two showed some sign of disease or ill health. The SSA failed to consider the significance of these data in evaluating Project impacts and devising mitigation. The demographic data collected by the Applicant demonstrate tortoises are reproducing on the site and contributing to maintenance of the population. Despite development of two Federal recovery plans, desert tortoise populations continue to decline over much of the species' range. The Applicant's data do not enable assessment of a population trend (i.e., increasing or declining), but they can be used to estimate density. Specifically, the data indicate the Project site has a relatively high density of tortoises compared to many other areas in the region (including within

[23] Project BA.

designated critical habitat). Sites with a high density of tortoises, such as the Project site, may provide strong evidence that the Project supports source populations, which are critically important for the recolonization of areas following local extinctions, and for maintaining the overall population.

Desert tortoises are subject to several forms of disease. In some populations a relatively high proportion of tortoises are infected with disease, making disease one of the major threats to desert tortoise recovery. In some instances, translocation of diseased individuals has been implicated as the cause for decline in an otherwise healthy desert tortoise population. The absence of disease in the majority of the tortoises detected by the Applicant (i.e., < 2%), in conjunction with the demographic data, provides convincing evidence that the resident tortoise population is healthy and reproducing. The existence and importance of such a healthy population was not fully articulated in the SSA, nor has it been properly addressed in Staff's proposed mitigation.

a. The Project would contribute to an unmitigated, significant cumulative impact on desert tortoise

According to the SSA,

> "Urbanization/loss of habitat, deteriorating habitat quality from off-highway vehicles, invasion of non-native grasses and weeds, predation by ravens, collection, livestock grazing, and spread of an upper respiratory tract disease have all contributed to the decline of desert tortoise populations. In response to this decline, large expanses of desert tortoise critical habitat and numerous ACEC/DWMA areas have been identified or established within the WEMO planning area. Region-wide, the cumulative impacts of past, present, and foreseeable future large-scale habitat conversions to desert tortoise habitat and connectivity are ***cumulatively significant, even with these conservation efforts. Such effects can only be addressed through a regional and coordinated effort.*** Ongoing collaborative efforts by federal and State agencies to develop a Desert Renewable Energy Conservation Plan and BLM's Solar Energy Development Programmatic EIS provide an appropriate vehicle for such a regional mitigation approach."[24]

The Desert Renewable Energy Conservation Plan and BLM's Solar Energy Development Programmatic EIS have yet to be developed. Therefore, they cannot be relied on to provide a regional mitigation approach, and there is no basis for Staff to conclude the project's contribution to significant cumulative effects on desert tortoise will be less than significant.

[24] SSA, p. C.2-135. [emphasis added]

b. The Mitigation Measures are Not Adequately Developed

The SSA has accurately portrayed many of the hazards associated with translocating desert tortoises and has rightly concluded that moving tortoises off the site would "pose substantial effects to this species."[25] Even though the Staff Assessment ("SA") indicated that "Staff considers the translocation effort for desert tortoise to be the critical path for commencement of construction activities," the Applicant has yet to provide even a rudimentary translocation plan for public review.[26] The only information afforded since release of the SA is that "[t]he applicant has identified several potential translocation sites including areas north, east, and west of the project site. *Some* of these sites are areas less than 500 meters from the project boundary which would limit the need for disease testing and *may allow* some tortoises to maintain a portion of their home ranges after translocation."[27] The only substantive information that can be obtained from these statements is that tortoises will not be moved south, which ironically is where the nearest critical habitat for the species is located.

It is not possible for the public or interested agencies to evaluate the SSA's mitigation proposal for impacts to desert tortoise until the Applicant has provided a finalized version of the Draft Desert Tortoise Translocation Plan.[28] The problems associated with the Ft. Irwin translocation effort highlight the need for a well-crafted plan based on the best available science. However, the SSA lacks any information on specific translocation sites, the habitat suitability of those sites for tortoises, and whether the resident tortoise would be adversely affected by translocated individuals (or vice-versa). In addition, although the SSA indicates there should be monitoring associated with the translocation, it does not establish any monitoring standards or success criteria for adaptive management measures (e.g., if elevated levels of predation occur). A detailed translocation plan must be developed and thoroughly vetted before Staff can conclude it would be an effective means of salvaging tortoises off the Project site. At a minimum, the plan should contain:

1. An assessment of potential release sites, with special attention dedicated to evaluating the factors that limit the distribution and abundance of desert tortoises, as well as an appraisal of probable dispersal patterns.
2. An experimental, controlled trial, in which the initial translocation strategy is evaluated, then modified to improve the likelihood of success.
3. A detailed description of the monitoring and adaptive management measures that will be implemented after desert tortoises are released.

Project Fencing

Neither the Applicant nor Staff has explained how the Project would be fenced to prevent ingress of desert tortoises, yet allow egress of storm waters. At least one tortoise was

[25] SSA, p. C.2-3.
[26] SA/DEIS, p. C.2-65.
[27] SA, p. C.2-73. [emphasis added]
[28] SA/DEIS, p. C.2-66.

"lost" following the Ft. Irwin translocation project, apparently as a result of a wash carving out space beneath the fence lining. In addition, a recent press release issued by the National Park Service documented the performance of a pedestrian fence installed by the U.S. Army Corps of Engineers and U.S. Department of Homeland Security. Following a summer storm event, the fence failed several performance criteria related to hydrology despite the U.S. Border Control's Final Environmental Assessment, which had concluded the fence would "not impede the natural flow of water." The Ft. Irwin and National Park Service events highlight the problems associated with fencing in desert wash systems; the need for information on how the Applicant intends to mitigate flows that may impact fencing; and provision of a more rigorous monitoring and maintenance schedule for tortoise exclusion fencing.

IV. THE SSA FAILS TO ADEQUATELY ANALYZE AND MITIGATE IMPACTS TO GOLDEN EAGLE

a. The Description of the Affected Environment is Unreliable

Golden eagles are known to nest within a few miles of the project site and have been observed foraging over the Project area.[29] Information provided by the BLM and the Applicant indicates that up to six potential nesting sites occur within a 10-mile radius of the Project site.[30] To document potential nest sites for golden eagles, the Applicant conducted a helicopter survey for the species in March 2010. The survey detected approximately 22 stick nests including eight inactive, but potential golden eagle nests, and one active nest that contained an incubating adult golden eagle. The active nest is located approximately 3.5 miles east of the proposed project area.

The USFWS has established *minimum* inventory and monitoring efforts that "are essential components" to avoiding and minimizing disturbance and other kinds of take of golden eagles.[31] The USFWS reports "[t]hese field efforts are the mutual responsibility of agencies authorizing activities and their permittees."[32] I concur with the USFWS that inventory data are essential to evaluating the impacts of a proposed activity and for avoiding and minimizing take of eagles. Consequently, data that conform to the minimum inventory requirements specified by the USFWS need to be provided before the SSA's impact assessment and proposed mitigation measures can be fully evaluated.

[29] SA/DEIS, p. C.2-4.
[30] SA/DEIS, p. C.2-31.
[31] Pagel JE, DM Whittington, GT Allen. 2010 Feb. Interim Golden Eagle inventory and monitoring protocols; and other recommendations. Division of Migratory Birds, United States Fish and Wildlife Service. p. 2.
[32] Pagel JE, DM Whittington, GT Allen. 2010 Feb. Interim Golden Eagle inventory and monitoring protocols; and other recommendations. Division of Migratory Birds, United States Fish and Wildlife Service. p. 2.

Research indicates golden eagles selectively use available habitat, and that they concentrate their foraging activities in select "core" areas.[33] In a study on spatial use and habitat selection of golden eagles in Idaho, Marzluff et al. (1997) concluded that there was substantial variation in home range size and habitat use among eagles, and that if such variation was ignored (by focusing on population averages), conservation strategies and biological descriptions will be inaccurate and rarely effective.[34] During the breeding season, eagles in Marzluff's study had home ranges as small as 480 acres, with 95% of the activity concentrated in core areas as small as 74 acres.[35] Home range size and behavior were a function of the types and configuration of prey habitat in the vicinity of the nest, and perhaps individual eagles.[36]

The results of this research have two important implications on the Project. First, in the absence of more appropriate empirical data, one must conclude Marzluff's results apply to the Project site, and thus the Project could eliminate a substantial amount of core habitat (perhaps all) used by at least one pair of breeding eagles. Second, whereas acquisition of compensation land may help conserve foraging habitat for *some* eagle(s), it may be of little consequence to *the* eagle(s) whose core habitat has been eliminated by the Project. This is important because not all eagles contribute equally to maintenance of the population.[37] For example, if all the suitable nest locations are fully-occupied, impacts leading to abandonment of a territory (either through destruction of the nest substrate or through not being re-occupied by either the original nesting pair or a new pair from the floater population) would likely have a significant negative impact to the area population.[38] Detrimental impacts to available prey base or intra-species competition would also contribute to stresses on the area population.[39]

I have the following additional comments related to Project impacts to golden eagles:

1. The SSA has not demonstrated that the Project would comply with the Bald and Golden Eagle Protection Act ("Eagle Act").
2. The compensatory mitigation plan recommended by Staff provides no provisions to ensure significant impacts to golden eagle foraging habitat would be mitigated to a level considered less than significant. Loss of core foraging habitat may result in nest failure and a violation of the Eagle Act.

[33] Marzluff JM, ST Knick, MS Vekasy, LS Schueck, TJ Zarriello. 1997. Spatial use and habitat selection of golden eagles in southwestern Idaho. The Auk 114(4):673-687.
[34] Marzluff JM, ST Knick, MS Vekasy, LS Schueck, TJ Zarriello. 1997. Spatial use and habitat selection of golden eagles in southwestern Idaho. The Auk 114(4):673-687.
[35] Id.
[36] Id.
[37] US Fish and Wildlife Service, Division of Migratory Bird Management. 2009. Final Environmental Assessment, Proposal to Permit Take. Provided Under the Bald and Golden Eagle Protection Act. Washington: Dept. of Interior.
[38] US Fish and Wildlife Service, Division of Migratory Bird Management. 2009. Final Environmental Assessment, Proposal to Permit Take. Provided Under the Bald and Golden Eagle Protection Act. Washington: Dept. of Interior.
[39] US Fish and Wildlife Service, Division of Migratory Bird Management. 2009. Final Environmental Assessment, Proposal to Permit Take. Provided Under the Bald and Golden Eagle Protection Act. Washington: Dept. of Interior.

3. Condition of Certification BIO-20 requires that "[f]or each calendar year during which construction will occur an inventory shall be conducted to determine if golden eagle territories occur within one mile of the Project boundaries." The condition subsequently specifies the minimum data required for the inventory. The Applicant plans to initiate construction this calendar year (i.e., 2010). However, it did not provide the data required of Staff's condition. Therefore, it is unable to comply with the conditions set forth in BIO-20.
4. On behalf of the Applicant, Dr. Mock has provided testimony that "[a]ll open desert lands are potential foraging habitat for eagles, and an extensive agricultural area west of the site is likely preferred foraging habitat for eagles and other raptors in the project vicinity." The scientific literature, including the literature that accompanies the Final Environmental Assessment for take permits under the Eagle Act, contradict Dr. Mock's testimony.[40] Conversion of habitat to agricultural uses has negatively impacted golden eagles.[41] Golden eagles generally avoid agricultural areas, in part because they do not support the golden eagle's preferred prey species.[42] In addition, secondary poisoning from rodenticides used on agricultural fields is known to cause mortality in golden eagles and many other raptor species.

As a result of these issues, it is my professional opinion that the Project would have a potentially significant, unmitigated impact on golden eagles.

V. THE SSA FAILS TO ADEQUATELY ANALYZE IMPACTS TO MOJAVE FRINGE-TOED LIZARD

Staff conducted a reconnaissance survey of the Project site and believes the Applicant has underestimated the amount of habitat for the Mojave fringe-toed lizard.[43] Although Staff has attempted to provide a more accurate estimate of the amount of habitat that would be affected by the Project, the SSA was unable to provide a final estimate of habitat loss and direct impacts to Mojave fringe-toed lizard. Instead, it deferred a refined estimate of these impacts to Condition of Certification BIO-13. The condition requires the Project owner to provide a delineation of habitat for Mojave fringe-toed lizards to the CPM. The condition further requires the delineation to be prepared by an expert on the species' ecology, whose qualifications have been approved by the CPM. The SSA does not establish when the delineation would be conducted, nor a valid reason for its deferral. There are no verification measures built into the condition of certification to assure an accurate assessment of habitat loss and direct impacts to Mojave fringe-toed lizard before ground disturbance begins.

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[40] USFWS. 2009. Proposal to Permit Take as Provided Under the Bald and Golden Eagle Protection Act. Final Environmental Assessment.
[41] *Id.*
[42] Marzluff JM, ST Knick, MS Vekasy, LS Schueck, TJ Zarriello. 1997. Spatial use and habitat selection of golden eagles in southwestern Idaho. The Auk 114(4):673-687.
[43] SA/DEIS, p. C.2-29.

The SA concluded "[p]roject construction, including the SunCatchers, fences, and drainage structures would likely alter the aeolian transport of sand across the site to downwind habitat within the adjacent Pisgah Crater ACEC, immediately east of the project boundary, though available data are insufficient to quantify this potential impact."[44] Because Mojave fringe-toed lizards are dependent on aeolian sand, any Project-induced changes to sand transport would constitute a potentially significant impact.

The SSA concluded the project "could affect sand transport eastward into the adjacent Pisgah Crater ACEC, though available information indicates that this impact would be relatively minor and [*sic*] is insufficient to quantify this potential impact."[45] The SSA indicates Appendix A to the SSA provides a sand transport study, but no such study accompanies the document.[46] Despite the likelihood that the Project would have significant indirect impacts to Mojave fringe-toed lizard habitat in the adjacent Pisgah ACEC, the SSA does not require any compensation or other mitigation for the impacts.

Appendix A, which is referred to by the SSA, appears to be the "Geomorphic Assessment of Calico Solar Project Site" report prepared by PWA on 12 May 2010. That report concludes the Project could impact dunes off-site that receive their sediment from the site watershed, but such a determination would require more site-specific analysis that "was not conducted as a part of this study."[47] As a result, the environmental consequence of the Project on downwind dune habitat (which also provides habitat for sensitive plant species) remains unassessed, unmitigated, and potentially significant.

In addition to issues related to sand transport, the SA concluded the Project could have numerous indirect impacts to Mojave fringe-toed lizards and their habitat from compaction of soils; the introduction of exotic plant species; alterations to the existing hydrological conditions; alterations in the existing solar regime from shading; modification of prey base; and altered species composition. The placement of fencing and other structures would provide roosting opportunities for avian predators that target lizard prey. This has been shown to deplete lizard populations around the edges of human development.[48] Most importantly, the SA concluded large-scale land use conversion and disruption of native habitat, including drainages and desert scrub communities, would likely disrupt the ability of this species to effectively disperse from source populations and may result in the extirpation of "this" population.[49] In addition, Staff has concluded that the Project's contribution to a significant cumulative impact on Mojave fringe-toed lizard, even with Staff's recommended Condition of Certification BIO-13, would be considerable due to the net habitat loss and interruption of suitable breeding and dispersal habitat between occupied habitat to the east and west. Nonetheless, the SSA proposes no additional mitigation for the Project's cumulative

[44] SA/DEIS, p. C.2-50.
[45] SSA, p. C.2-68.
[46] SSA, p. C.2-7.
[47] PWA, 2010 May 12. Draft Appendix A (Biology Report), p 21.
[48] Barrows CW, MF Allen, JT Rotenberry. 2006. Boundary processes between a desert sand dune community and an encroaching suburban landscape. Biological Conservation 131:486–494.
[49] SA/DEIS, p. C.2-61.

impact. Given the population dynamics exhibited by this species, including its reliance on a functioning metapopulation structure to persist, it is my professional opinion that the cumulative impacts scenario presented in the SSA would result in the extirpation of the Mojave fringe-toed lizard from the region.

VI. CRYPTOBIOTIC SOIL CRUSTS AND DESERT PAVEMENT

Cryptobiotic soil crusts—communities of cyanobacteria, lichens, and mosses—are found throughout the world's deserts. These crusts bind fine soil particles by linked cyanobacterial fibers, which protect the soil from wind erosion. Several studies have suggested that the presence of cryptobiotic crusts dramatically decreases wind and water erosion.[50] When disturbed, cryptobiotic crusts lose most of their protective qualities allowing mobilization of the underlying mineral soils.[51]

Desert pavement—a desert surface that is covered with closely packed, interlocking angular or rounded rock fragments of pebble and cobble size—is also abundant throughout the world's deserts (most aeolian deflation zones are composed of desert pavement). Desert pavement is very stable and it protects the soil from wind and water erosion. However, underneath the desert pavement is a layer of extremely wind-erodable, wind-derived material, sometimes meters thick. As a result, anthropogenic disturbance to desert pavement or cryptobiotic crusts—such as the grading and other activities proposed by the Project applicant—is likely to have profound consequences.

a) The SSA Failed to Analyze the Significant Impacts from Vegetation Loss

Once the desert crust or pavement is removed (or damaged), sand may be blown several kilometers downwind, resulting in an area of indirect disturbance that can exceed the directly disturbed area by several-fold. For example, Okin et al. (2001) reported that 3,000 ha of land directly disturbed would be expected to indirectly disturb an additional 3,000 to 9,000 ha of land. The encroachment of blowing sand into adjacent shrublands has dramatic consequences for the landscape. Field observations indicate that blowing sand abrades plants, resulting in leaf stripping and damage to the cambium and therefore to the plant's ability to distribute and use water. Young plants are especially vulnerable to the effect of blowing sand as they lack woody tissue. This results in the suppression of revegetation in bare areas and the loss of vegetation on adjacent lands. Nitrogen-fixing microbial communities and cryptobiotic crusts are buried by sand, reducing inputs of nitrogen to the soil (Belnap et al. 1993; Evans and Belnap 1999).

The Project would involve site grading, which would destroy vegetation. In addition, the Project would involve brush trimming between every other row of SunCatchers (i.e., the power generation units). Schlesinger and Pilmanis (1998) have reviewed field experiments in which shrubs have been removed by cutting, herbicides, or fire. These

[50] Okin GS, B Murray, WH Schlesinger. 2001. Degradation of sandy arid shrubland environments: observations, process modeling, and management implications. Journal of Arid Environments Vol. 47, No. 2, pp. 123–144.
[51] *Id.*

studies show variable rates of soil degradation, but in each case, "a loss of the local biogeochemical cycle associated with shrubs has allowed physical processes to disperse soil nutrients across the landscape." Thus, the progressive reduction in fertility acts in tandem with the mechanical action of sand to further decrease shrub cover, which, in turn, increases the susceptibility of the land to wind and water erosion. The permanent removal of suspension-sized particles from the soil by erosion results in a change of the soil texture, which may also reduce soil-binding properties, resulting in increased erodibility. Whether by wind or water, the fine particles and soil organic matter that are removed by erosion are key to the healthy functioning of soils because they increase soil nutrient content, soil porosity, water-holding capacity, and cation-exchange capacity. Because new vegetation growth is inhibited by blowing sand, the ability of vegetation to stem erosion is limited. This results in a negative feedback loop that ultimately results in severe land degradation.

VII. THE SSA FAILS TO ADEQUATELY ANALYZE IMPACTS TO SPECIAL-STATUS BAT SPECIES

The West Mojave Plan ("WMP") was created "to develop management strategies for the desert tortoise, Mojave ground squirrel and over 100 other sensitive plants and animals that would conserve those species throughout the Western Mojave Desert, while at the same time establishing a streamlined program for compliance with the regulatory requirements of FESA and CESA."[52] Included in the list of roughly 100 sensitive plants and animals governed by the WMP are 6 species of bats that require specific consideration.

No bat surveys have been conducted for the Project. However, the Townsend's big-eared bat is known to occur on the Project site, and several other bat species have been identified as having potential to occur.[53] Potential roost sites for bats occur in the Project area (i.e., railroad trestles, and rock outcroppings) and bats are known from the nearby Pisgah Craters.[54] In addition, the geologic map recently submitted by the Applicant depicts two mines (one of which is labeled "abandoned mine works") near the Project boundary.[55] The WMP identifies the potential for mines in the Project area to have significant (i.e., important) bat roosts. Despite this fact, none of the Applicant's biological resource maps show these mines, and the Applicant has not provided any information on how the Project might affect bat roosts that occur in the mines. Because bats are extremely susceptible to noise and other forms of human disturbance, and because viable roost sites are essential to maintaining bat populations, an assessment of Project impacts on bats must be provided.

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[52] Bureau of Land Management. 2005. Final environmental impact report and statement for the West Mojave Plan: a habitat conservation plan and California desert conservation area plan amendment. Moreno Valley (CA): U.S. Dept. of the Interior, Bureau of Land Management, California Desert District, Opening Letter.
[53] SA/DEIS, Biological Resources Table 1.
[54] SA/DEIS, p. C.2-93.
[55] URS. 2010 May 14. Field Reconnaissance Geologic Map, Calico Solar Project, Figure 4.

Under the WMP, take of bats and their roosting habitat is limited to sites harboring 10 or fewer bats.[56] The WMP does not permit the loss of significant roosts, and specific procedures must be followed for surveys and to allow for safe exit of bats.[57]

a. Survey Protocols Violate the West Mojave Plan

In order to mitigate adverse impacts on potential bat communities, the SSA has recommended the implementation of Bat Impact Avoidance and Minimization Measures ("BIO-25"), which includes pre-construction surveys in all areas of suitable bat habitat (i.e., rock outcrops and railroad trestles). The survey methods provided in BIO-25 do not mitigate potentially significant impacts to special-status bat species, and they do not correspond with the guidelines established by the WMP. Whereas the SSA requires roosting surveys to be conducted during the maternity season (1 March to 31 July), the WMP indicates that surveys must take place in both the summer and winter "to determine if bats utilize a potential roost for hibernation or for maternity colonies."[58] Additionally, the WMP specifies "surveys that indicate a roost is used in one of the seasons should be repeated during the other season to determine if bats use the roost for both functions."[59] Lastly, given the Applicant's proposal to start construction this year, there is no way for it to satisfy Staff's requirement that bat surveys be conducted during the maternity season (March through July).

b. Significance of Roosts Is Not Adequately Identified in the SSA

In discussing the required mitigation steps in the event that an active roost is located within Project boundaries, BIO-25 fails to set significant roost levels in accordance with the WMP. Under the WMP, all maternity and hibernation roosts of Townsend's big-eared bat and California leaf-nosed bat are considered significant if more than 10 individuals are present. Roosts of the other four bat species are considered significant at populations greater than 25.[60] Significant roosts may not be taken per the WMP, which must be incorporated into BIO-25 of the SSA. Specifically, the SSA contains ambiguous language on mitigation for an active maternity and/or hibernation roost on-site. It states, "[i]f active maternity roosts or hibernacula are found, the rock outcrop or trestle occupied by the roost shall be avoided (i.e., not removed) by the project, ***if feasible.***"[61] The mitigation measures must be modified so that an active, *significant* maternity and/or hibernation roost is completely avoided by all Project activities. Under the WMP, the presence of alternative maternity roosting sites in the area does not allow for disruption and/or take of "significant" roosts (as has been implied by the SSA), nor is there a provision for take of "significant" roosts if alternative roosting sites are available.

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[56] Bureau of Land Management. 2005. Final environmental impact report and statement for the West Mojave Plan: a habitat conservation plan and California desert conservation area plan amendment. Moreno Valley (CA): U.S. Dept. of the Interior, Bureau of Land Management, California Desert District, Chapter 2, p. 2-46.
[57] Id.
[58] Ibid., p. 2-80
[59] Ibid., p. 2-80
[60] WMP, p. C-79
[61] SSA, p. C.2-223.

c. Removal Measures are Inconsistent with WMP Guidelines and Protocol

Roosts that are not deemed significant by the thresholds discussed above qualify for incidental take following certain procedures outlined in the WMP. These apply to both non-significant maternity and hibernation roosts. The WMP recommends a temporary closing of roosts after the evening flight and entering the roost to remove any remaining bats. This process is to be repeated twice by a qualified biologist and in consultation with CDFG. The protocol for non-significant roost removal in BIO-25 must be modified to correspond with the WMP guidelines.

The timing of non-significant roost removals must also follow WMP protocol. BIO-25 states, "[i]f an active maternity roost is located in an area to be impacted by the project, and alternative roosting habitat is available, the demolition of the roost site must commence before maternity colonies form (i.e., prior to 1 March) or after young are flying (i.e., after 31 July)."[62] However, the WMP also prohibits disturbance or removal of non-significant roosts during winter hibernation seasons, which is absent from the timeframe included in the SSA. Per WMP guidelines, BIO-25 must include provisions to prevent roost disturbance or removal during both maternity and hibernation periods.

d. Impacts to Bat Species from Transmission Line Upgrades and Substation Construction are Not Adequately Analyzed

The Project is entirely dependent on the transmission line upgrades and substation construction proposed by the Applicant. Because these activities are part of the Project, the SSA must provide bat impact avoidance and minimization measures that apply to transmission line and substation upgrade activities.

The SSA notes the presence of potential bat habitat (i.e., mine shafts, rock outcrops, lava tubes, railroad trestles, bridges)[63] within the proposed transmission line route, and information provided by the Applicant states that the transmission line ROW runs east along the Mojave River, which represents potential riparian habitat for Townsend's big-eared bat. Significant roosts of this species have been recorded along the Mojave River.[64] A complete survey of all suitable bat habitat according to protocol established by the WMP must be conducted for any Project activities that occur in the WMP Area. The avoidance and mitigation measures established in the WMP must then be implemented if bat roosts are present.

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[62] DEIS, p. C.2-197
[63] DEIS, p. C.2-92
[64] Bureau of Land Management. 2005. Final environmental impact report and statement for the West Mojave Plan: a habitat conservation plan and California desert conservation area plan amendment. Moreno Valley (CA): U.S. Dept. of the Interior, Bureau of Land Management, California Desert District.

VIII. THE SSA FAILS TO ADEQUATELY ANALYZE ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE REQUIRED TRANSMISSION UPGRADES

a. The Description of the Affected Environmental is Unreliable

The Project requires construction of approximately 67 miles of 500kV transmission line between the existing Pisgah and Lugo substations.[65] In addition, the existing Pisgah Substation would be relocated and expanded, and the Lugo Substation would be upgraded and expanded.[66] New telecommunication facilities would be installed between the Gale and Pisgah substations as well as between the Lugo and Pisgah substations. Although all these are reasonably foreseeable activities, the SSA does not depict them on a map or otherwise specify their boundaries.

The applicant conducted a reconnaissance-level habitat assessment to characterize the vegetation within the Pisgah-Lugo corridor and to determine potential habitats for sensitive species in 2007 and 2008.[67] To date, no surveys have been conducted along the Gale-Pisgah telecommunication corridor.[68]

The Pisgah-Lugo transmission corridor encompasses a wide range of terrain and elevation, and according to the Applicant, it crosses 17 native vegetation types (some of which are sensitive natural communities) and 3 non-native or disturbance-related vegetation types. The SA states the transmission corridor would cross through the Ord-Rodman Desert Wildlife Management Area (DWMA), the Pisgah Area of Critical Environmental Concern (ACEC), and the Upper Johnson Valley Yucca Rings ACEC.[69] Information provided by the Applicant suggests the transmission line would also pass through the Juniper Flats ACEC.[70]

Ten special-status plant and animal species were detected during the Applicant's reconnaissance-level surveys of the transmission corridor. However, numerous other special-status species have the potential to occur along the route. This was not articulated clearly in the SA, nor did the SA list all of the special-status species that might be affected by activities associated with the transmission line and substation upgrades. According to the Applicant, listed species with a "moderate" or "high" potential of being affected by the transmission line and substations upgrades include: Mojave tarplant (State Endangered), California red-legged frog (Federally Threatened), desert tortoise (State and Federally Threatened), southwestern willow flycatcher (State and Federally Endangered), and Mohave ground squirrel (State Threatened).

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[65] *See* AFC, Appendix EE: Environmental Summary Report for the Proposed Lugo-Pisgah 500kV Transmission Line and Substation Upgrades.
[66] SA/DEIS, p. C.2-117.
[67] SA/DEIS, p. C.2-113.
[68] *Id.*
[69] SA/DEIS, p. C.2-116.
[70] Applicant's response to CURE data request 395.

b. Impact Assessment and Mitigation is Inadequate

The SA concludes the transmission line and substation upgrades would create significant impacts to biological resources due to the permanent loss of habitat and the disturbance to sensitive plant and wildlife species during construction.[71] However, the SA further concluded mitigation is available and feasible, and would likely reduce most impacts to biological resources to less-than-significant levels under CEQA.[72] The SA does not provide sufficient information to assess whether transmission line and substation upgrade activities would comply with the West Mojave Plan.

The SA lacks support for the conclusion that mitigation is available and feasible, or that the proposed mitigation would likely reduce most impacts to biological resources to less-than-significant levels. The Upper Johnson Valley Yucca Rings ACEC contains a unique assemblage of ancient vegetation. Impacts to this feature would be significant and unmitigable.

White-margined beardtongue occurs along the transmission line route. This species has an extremely limited distribution in California, with most known occurrences in the immediate Project area. The continued existence of white-margined beardtongue in California is threatened by the Project. Because the species is known to occur along the transmission line route, upgrade activities would exacerbate the threat, and might not be mitigable.

The SA references "mitigation such as the measures described above" to justify its conclusion that mitigation to reduce impacts is available and feasible.[73] The mitigation measures described "above" were originally recommended by the Applicant in Appendix EE to the AFC.[74] The SA has demonstrated that some of these measures are actually *infeasible*. For example, the Applicant proposed relocation for impacts to white-margined beardtongue,[75] which the SA explicitly states is infeasible as mitigation.[76]

IX. THE SSA FAILS TO ADEQUATELY ANALYZE IMPACTS TO SPECIAL-STATUS PLANTS

The SSA lacks the information necessary to conduct a reliable assessment of Project impacts to special-status plant resources. This is primarily due to the Applicant's failure to conduct surveys during the summer/fall season or provide reliable data from surveys conducted during its 2007 and 2008 spring surveys. The SA did not contest this argument, and I believe Staff made considerable efforts to incorporate the Applicant's

[71] SA/DEIS, p. C.2-122.
[72] *Id.*
[73] *Id.*
[74] SA/DEIS, p. C.2-119.
[75] AFC, Appendix EE, p. 21.
[76] SA/DEIS, p. C.2-119.

2010 survey data into the SSA. However, I am concerned the late submittal of these data has not given Staff adequate time to assess them or devise appropriate mitigation.

I have the following comments related to Project impacts to, and mitigation for, sensitive botanical resources:

1. Without reliable information on the species that occur—and as a result, the level and types of Project impacts on those species—the SSA cannot conclude proposed mitigation would reduce Project impacts to less than significant levels. A conclusion of this nature would rely on the presumption that all impacts can be mitigated to a less than significant level. Such a presumption is unrealistic for two reasons. First, it is difficult to predict the outcomes of surveys due to the new and unexpected discoveries that have been occurring in the desert (and thus the inability to pre-assign mitigation). Second, the flora of the Desert Floristic Province is poorly understood and therefore surveys may yield completely unexpected results that cannot be mitigated by standard conditions.
2. Small-flowered sand-verbena (*Tripterocalyx micranthus*) was reported on the Project site in the Applicant's Biological Resources Technical Report, though the locations were not mapped, nor was there an indication of numbers of plants or extent of distribution across the project site.[77] If valid, this report would be the first record of small-flowered sand-verbena in the central Mojave Desert. It was not relocated on the site during 2010 field surveys. Staff concluded the original report was apparently due to misidentification and that small-flowered sand verbena is unlikely to occur on the site. However, Staff further concluded that if small-flowered sand-verbena occurs on the Project site, impacts would be significant and would require mitigation. Staff provided little explanation for its conclusion that the species was unlikely to occur on the site, and based on my review of the literature, I do not think the possibility that it might occur should be discounted. The only means Staff has suggested for developing a more reliable conclusion on the species' occurrence is through "follow-up field surveys." The blooming period for the plant is reported to be from April to May, and therefore the Applicant's late season surveys would not be a sufficient means of searching for the plant before Project construction begins. As a result, Project impacts on the species would be potentially significant and unmitigated.
3. Many of the sub-categories in Section A of Staff's proposed Condition of Certification BIO-12 lack success criteria and rigor to ensure they are likely to succeed.
4. Section B of BIO-12 requires late-season surveys "to the extent feasible." However, the condition lacks a definition of what is considered feasible, or which party dictates feasibility.

[77] SA, p. C.2-32.

5. The compensatory mitigation described in Section D of BIO-12 lack feasibility and reasonable assurance that they would be commensurate with Project impacts.
6. The SSA requires mitigation for Project impacts to 3.3 acres of catclaw acacia or smoke tree habitat. Based on the map submitted by the Applicant, microphyllus tree species appear to be distributed along a cumulative total of at least two miles of desert wash. The SSA lacks an explanation of why impacts to a linear feature where converted into an area measurement for mitigation (which has resulted in mitigation not commensurate with Project impacts).
7. Staff concluded 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."[78] However, the SA noted that (a) a large percentage (85%) of the occurrences documented in the California Natural Diversity Database (82 occurrences as of Apr 2010) is threatened by development (solar energy projects and Fort Irwin expansion);[79] and (b) the Project could have a significant impact on downwind habitat within the Pisgah Crater ACEC.[80] In addition, the occurrence of over 1,500 small-flowered androstephium plants on the Project site during the 2010 plant surveys represents the single largest population of the species in California (based on records in the California Natural Diversity Database). These factors support the conclusion that the Project would have a potentially significant impact on small-flowered androstephium.

Compliance with the West Mojave Plan

The West Mojave Plan ("WMP") provides conservation measures to minimize and mitigate the take for each species for which take has been authorized. It does not appear that the Project complies with these conservation measures.

The WMP has established the allowable amount of incidental take of white-margined beardtongue for maintenance of existing facilities within the BLM utility corridor and on private land within the species' range. The authorized amount of incidental take is limited to 50 acres of occupied and *potential* habitat.[81] Additionally, the WMP calls for the conservation of all known occurrences of the species within washes south of the Cady

[78] SA/DEIS, p. C.2-51.
[79] SA/DEIS, p. C.2-22.
[80] SA/DEIS, p. C.2-50.
[81] Bureau of Land Management. 2005. Final environmental impact report and statement for the West Mojave Plan: a habitat conservation plan and California desert conservation area plan amendment. Moreno Valley (CA): U.S. Dept. of the Interior, Bureau of Land Management, California Desert District, Chapter 2, p. 2-51.

Mountains.[82] Due to limitations of the botanical field surveys, the SSA could not evaluate the total extent of habitat or numbers of white-margined beardtongue within the proposed Project area.[83] However, the SSA concluded white-margined beardtongue has the potential to occur anywhere in the lower elevation wash and sandfield vegetation.[84]

The WMP restricts the construction of windbreaks upwind of occupied Mojave fringe-toed lizard habitat.[85] The Project would be located directly upwind of occupied habitat within the Pisgah ACEC, which was specifically designated for conservation of the Mojave fringe-toed lizard.[86]

[82] *Id.*
[83] SA/DEIS, p. C.2-49.
[84] SA/DEIS, p. C.2-25.
[85] Bureau of Land Management. 2005. Final environmental impact report and statement for the West Mojave Plan: a habitat conservation plan and California desert conservation area plan amendment. Moreno Valley (CA): U.S. Dept. of the Interior, Bureau of Land Management, California Desert District, Chapter 2, p. 2-92.
[86] SA/DEIS, p. C.7-10.

Declaration of Scott Cashen
Calico Solar Project

Docket 08-AFC-13

I, Scott Cashen, declare as follows:

1) I am an independent biological resources consultant. I have been operating my own consulting business for the past three years. Prior to starting my own business I was the Senior Biologist for TSS Consultants.

2) I hold a Master's degree in Wildlife and Fisheries Science. My relevant professional qualifications and experience are set forth in the attached testimony and are incorporated herein by reference.

3) I prepared the rebuttal testimony attached hereto and incorporated herein by reference, relating to the biological resource impacts of the Calico Solar Project.

4) I prepared the rebuttal testimony and maps attached hereto and incorporated herein by reference relating to the distribution of solar energy generation infrastructure in San Bernardino County.

5) It is my professional opinion that the attached rebuttal testimony and maps are true and accurate with respect to the issues that they address.

6) I am personally familiar with the facts and conclusions described within the attached rebuttal testimony and maps, and if called as a witness, I could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 7-29-10 Signed: _____

At: Walnut Creek, CA

Calico Solar – 08-AFC-13
DECLARATION OF SERVICE

I, Bonnie Heeley, declare that on July 29, 2010, I served and filed copies of the attached Rebuttal Testimony of Scott Cashen on Behalf of California Unions for Reliable Energy on Biological Resources for the Calico Solar Project dated July 29, 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/calicosolar/CalicoSolar_POS.pdf. The document has 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 electronically to all email addresses on the Proof of Service list; and by depositing in the U.S. mail at South San Francisco, CA, with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list to those addresses NOT marked "email preferred."

AND

By sending an original paper copy and one electronic copy, mailed and emailed respectively to:

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

I declare under penalty of perjury that the foregoing is true and correct. Executed at South San Francisco, CA, on July 29, 2010

_____/s/_____
Bonnie Heeley

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DECLARATION OF BORIS POFF
CALICO SOLAR PROJECT
08-AFC-13

I, Boris Poff, declare as follows:

1. I prepared the testimony attached hereto and incorporated herein by reference as it relates to the Supplemental Staff Assessment prepared for the project known as the Calico Solar Project.
2. It is my professional opinion that the attached testimony is true and accurate.
3. I am personally familiar with the facts and conclusions described within the attached testimony and if called as a witness, I could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: July 29, 2010.

Signed _____

At: Las Vegas, Nevada