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September 27, 2010

California Energy Commission
Attn: Docket No 08AFC5
1516 Ninth Street
Sacramento, CA 95814

Re: Docket No. 08-AFC-5, SES Solar Two Project

Dear Docket Clerk:

Enclosed are an original and one copy of the following: CUE'S RESPONSE TO COMMENTS ON THE PRESIDING MEMBER'S PROPOSED DECISION. Please docket the original, conform the copy and return the copy in the envelope provided.

Thank you for your assistance.

Sincerely,

/s/

Valerie Stevenson
Legal Assistant

:vs
Enclosures

2218-163v

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of: The Application for Certification for the Imperial Valley Solar Project (formerly SES Solar Two Project)	Docket No. 08-AFC-5

CALIFORNIA UNIONS FOR RELIABLE ENERGY RESPONSE TO COMMENTS ON THE PRESIDING MEMBER'S PROPOSED DECISION

September 27, 2010

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Attorneys for the CALIFORNIA UNIONS FOR RELIABLE ENERGY

California Unions for Reliable Energy ("CURE") submits the following comments in response to the comments of Commission Staff on the Presiding Member's Proposed Decision ("PMPD"). CUREs responses are tailored to specific sections of the PMPD including the introduction, project alternatives, biological resources, soil and water resources, cultural resources, and water supply, as indicated in the headings below.

In sum, the Commission should direct Staff to analyze significant impacts from the Applicant's new proposed 709 Mw power plant Project, deny the Applicant's request to use drinking water from the Dan Boyer well in a sole source aquifer, require Staff's proposed land acquisition mitigation for permanent significant impacts to bighorn sheep foraging habitat, analyze significant impacts to cultural resources and propose mitigation for those impacts prior to Project approval.

Furthermore, since the Commission has not yet provided public notice and a 30-day comment period on Parts I and II of the SSA or provided responses to comments thereon, CURE attaches its briefing and testimony as Exhibit 1, incorporates the briefing and testimony as comments on the PMPD, and requests that the Commission provide responses to comments in a revised PMPD that is circulated for public review.

Introduction

PMPD: "Staff's responses to public comment on the SA and its complete analyses and recommendations were published in Supplemental Staff Assessment Parts A through C, which were made available for public comment."

Staff recommends correcting the PMPD by explaining that the Supplemental Staff Assessment ("SSA") included Parts I and II, not parts A through C.

CURE agrees with Staff's proposed change. CURE also recommends that the PMPD delete the phrase "which were made available for public comment," since they were not.

The Commission **did not provide notice, a 30-day public comment period or responses to comments** on Parts I and II of the SSA. The California Environmental Quality Act ("CEQA") requires that the Commission do so. Specifically:

- Public Resources Code § 21092 requires the Commission to provide public notice that specifies the period during which comments will be received. No such notice was issued on the SSA Parts I and II.

- Public Resources Code § 21091(a) provides that the Commission's public review period may not be less than 30 days. Again, there was no 30-day public comment period provided on the SSA Parts I and II.

- Public Resources Code § 21091(d) requires the Commission to consider comments it receives on the draft assessment ***and prepare a written response***. The Commission did not provide any written response to comments on either of these two documents.

The Commission is not exempt from any of these mandatory CEQA requirements.

While the Commission did properly provide a public comment period and response to comments on the original Staff Assessment issued in February, 2010, the Applicant substantially revised the description of the Project since that date, and the Commission subsequently identified new significant impacts and proposed new mitigation. The Commission never provided the public with a 30-day public comment period on the revised Project description, Staff's analysis of new significant impacts or Staff's newly proposed mitigation for those significant impacts. Nor did the Commission provide responses to comments following a noticed public comment period.

For example, after the Commission released the February, 2010 Staff Assessment, the Applicant changed the Project description on July 13, 2010 to eliminate roads to SunCatcher units and to permit overland travel to the units for construction, maintenance, washing and other activities. Staff and CURE submitted legal briefs explaining that these changes in the Project description at the final evidentiary hearing raised new significant impacts that have never been analyzed. Thus, CEQA prohibits the Commission from approving the Project prior to Staff's analysis, an opportunity for comment and responses to comments. Despite State law, the PMPD now proposes to approve the Applicant's new Project. The Commission's approval of the Project would violate CEQA.

Additionally, after the Commission released the February, 2010 Staff Assessment, Staff determined that the Project would pose significant impacts to federally endangered peninsular bighorn sheep, which would require mitigation in the form of land compensation and long-term management of foraging habitat. Following Staff's new determination, the Applicant proposed a controversial mitigation strategy, removal of Tamarisk in Carrizo Creek, in lieu of Staff's proposed mitigation. Both Staff and CURE explained that the Applicant's last-minute substitution of a proposal to remove Tamarisk is unsupported and is not a feasible and effective mitigation measure that will reduce impacts to less than significant. Despite the lack of evidence, the PMPD proposes to adopt the Tamarisk removal mitigation plan. Finally, Staff conducted no analysis of Tamarisk removal to reduce significant impacts to bighorn sheep, and no analysis was circulated for

public comment. The Commission's approval of a Tamarisk removal mitigation measure would violate CEQA.

Further, the February 2010 Staff Assessment includes no analysis of, or mitigation for a number of significant impacts to cultural resources. Since the release of the Staff Assessment, Staff identified additional significant impacts, while acknowledging that the analysis is still not complete. Moreover, the PMPD proposed new mitigation that Staff concluded would be meaningless. Again, the Commission has not provided notice to the public, a 30-day comment period or responses to comments on this new significant information. Therefore, the Commission's approval of the Project would violate CEQA.

Finally, the February, 2010 Staff Assessment assumed the Project would rely upon water from the Seeley Waste Water Treatment Facility. Since that time, the Applicant has proposed to rely upon the Dan Boyer well located in a sole source drinking water aquifer. The Commission has never noticed or provided a 30-day public comment period on Staff's analysis of this new water source in Part II of the SSA, and no responses to comments have been provided. The failure to provide a noticed opportunity for public comment and responses to comments is particularly egregious in light of the following:

- Potable drinking water from the Dan Boyer well is taken from an aquifer that is the only source of drinking water for the region overlying the aquifer.

- There is no evidence that enough potable drinking water is available to meet the Applicant's stated needs since the Applicant requires 42.3 acre feet for its first year of construction and the well can only provide 39 acre feet per year.

- There is no evidence that the water is available for 36 months, as proposed in the PMPD, since Dan Boyer stated the company could temporarily supply an unidentified amount of water for only 6 to 11 months.

- The record shows that the new Project description which permits off-road vehicle use will require the use of **more water** to address new significant impacts to air quality from dust and on public health from Valley Fever.

- During evidentiary hearings, an Imperial County official testified that the Dan Boyer well was operating illegally.

- Local residents testified and commented that the drinking water from this aquifer is the only source of drinking water for four communities and has **no known recharge**.

- Staff testified that the water is finite and the Applicant **did not propose mitigation** that would reduce the impacts to the aquifer to less than significant.

- Staff concluded that the Applicant's reliance on this water source would pose significant unmitigable impacts.

Despite this overwhelming evidence that using potable water from the Dan Boyer well in a sole source aquifer is not a reliable source of water and would result in significant unmitigated impacts to the sole source aquifer, the PMPD proposes that the Project rely on this potable water supply as the sole source of water for the Project for at least 36 months and finds this use would pose no significant impacts. The PMPD has no substantial evidence to support this conclusion. Furthermore, the Commission has never noticed or provided a 30-day public comment period on Staff's analysis of this new water source in the SSA, and no responses to comments have been provided. Thus, the Commission's approval of the use of this water source would violate CEQA.

The PMPD's public comment period does not remedy the Commission's failure to circulate Part I and II of the SSA for public review and comment, since circulation must occur early enough in the CEQA process to ensure that the environmental issues are addressed. The PMPD is too late in the Commission's approval process since the PMPD's momentum provides a strong incentive to ignore significant environmental concerns. In addition, the PMPD ***provides no response to comments***. Part I and II of the SSA must be subject to the "critical evaluation that occurs in the draft stage," so that the public is not denied "an opportunity to test, assess, and evaluate the data and make an informed judgment as to the validity of the conclusions to be drawn therefrom."[1] Thus, the Commission's approval of the use of this water source would violate CEQA.

Recommendation: The Commission should direct Staff to analyze the recently submitted and revised proposed power plant Project, notice Staff's analysis for a 30-day public comment period and provide responses to comments. Additionally, the Commission should issue a 30-day public comment period on Parts I and II of the SSA and provide responses to comments, accordingly.

[1] *Sutter Sensible Planning, Inc. v. Board of Supervisors (*1981) 122 Cal. App. 3d 813,822.

Project Alternatives

PMPD: The PMPD proposes to approve a 709 Mw power plant that was admittedly not analyzed by Staff. (PMPD Alternatives, p. 20.)

Staff commented that the relative impacts can differ significantly based on the *type and location of impacts* within the area due to the uneven distribution of environmental resources [not simply the size of the overall Project].

CURE agrees with Staff's concern and adds that the new 709 Mw power plant has not been adequately analyzed by any party in this proceeding. CURE submitted additional evidence from an expert hydrologist, Dr. Chris Bowles, which provided substantial evidence that overland travel, or off-road vehicle use, may result in new significant environmental impacts on air, public health and water. The Commission did not provide CURE an opportunity to submit these comments during a noticed public comment and did not provide CURE an opportunity to provide this evidence during the evidentiary hearings, because the Applicant did not explain the new Project in detail prior to the date upon which the Committee ordered testimony due. However, CURE submitted this evidence as part of the initial comments on the PMPD.

Pursuant to CEQA, "any alleged grounds for noncompliance with CEQA provisions may be raised by any person prior to the close of the public hearing on the project before the issuance of the notice of determination."[2]

Recommendation: The Committee should treat the Applicant's newly proposed 709 Mw power plant project, which was submitted in rebuttal testimony two working days before the final evidentiary hearing, as an AFC Supplement and direct Staff to analyze the new project, circulate its analysis for a 30-day public comment period and provide responses to comments.

Biological Resources

PMPD: The PMPD concludes that the Applicant may mitigate significant impacts to peninsular bighorn sheep by removing Tamarisk in Carrizo Creek and marsh. Success criteria are explicitly not included in the PMPD. (PMPD Biological Resources, pp. 37, 90.) The PMPD concludes that compensation of 247 acres (or 28%) of the ephemeral washes on the Project site would mitigate significant impacts to peninsular bighorn sheep. (PMPD Biological Resources, pp. 89-91.)

Staff recommends requiring the Applicant to compensate for the loss of 881 acres of peninsular bighorn sheep foraging habitat because substantial evidence in the

[2] *Galante Vineyards v. Monterey Peninsula Water Management Dist*. (1997) 60 Cal.App.4th 1109, 1121.

record shows that the enhancement of existing habitat would not mitigate the permanent loss of foraging habitat that exists on the Project site. Staff also disputes the PMPD's sole and untested reliance on the CRAM analysis to determine the acreage of foraging habitat on the project site since the CRAM analysis does not account for the undisputed deficiencies inherent in that analysis. The CRAM analysis has limited use modeling the physical and biotic structures in the Yuha desert since CRAM was designed to model riverine environments.

CURE agrees with Staff. CURE adds that Dr. Vernon Bleich, a noted bighorn sheep expert, testified that removal of Tamarisk in the Carrizo Creek would not adequately mitigate the Project's significant impacts to bighorn sheep. Specifically Dr. Bleich testified that removal of Tamarisk would not mitigate the Project's loss of forage habitat because bighorn are not marsh-dwelling creatures. (RT 7/27/10, pp. 339-340.) Bighorn depend on riparian vegetation in ephemeral desert washes, especially pregnant ewes during gestation. The Project site offers the specific kind of forage opportunities needed by bighorn, forage that the Carrizo Creek would not offer, regardless of whether Tamarisk is removed or not. Moreover, the PMPD's conclusion that the Applicant should only mitigate for significant impacts to 28% of ephemeral washes on the Project site is absurd. The Applicant's modeling showed that the washes had an ***average*** of 28% cover, not that only 28% of the washes had any cover. Dr. Bleich testified that an average of 28% cover is a relatively high amount of cover in the desert environment, and that bighorn could forage in areas with much lower percentage of cover. In other words, the CRAM analysis does not support the Applicant's conclusion that only 28% of the acreage in the washes provide forage opportunities for bighorn.

Recommendation: Require the Applicant to mitigate impacts to bighorn sheep by purchasing 881 acres of peninsular bighorn sheep foraging habitat and conducting long-term monitoring, as recommended by Staff.

Cultural Resources

PMPD: The PMPD adopts the mitigation measures set out in the FEIS by the Bureau of Land Management ("BLM"). However, the PMPD then explains that if the provisions in the BLM's still unresolved Programmatic Agreement-process conflict with or duplicate the PMPD's conditions, then the BLM's provisions take precedence. (PMPD Cultural Resources, p. 102.)

Staff recommends that the PMPD not adopt the mitigation measures set out in the FEIS, but instead include these measures as evidence of potential mitigation to be developed through the BLM's yet-to-be finalized Programmatic Agreement process that will be overseen by the BLM.

CURE objects to the approach proposed by Staff and the PMPD. The Commission has not yet analyzed significant impacts to cultural resources in this proceeding. By deferring the identification of impacts, the determination of the significance of the impacts and the development of a mitigation strategy until after the Project is approved, the Energy Commission is expressly handing over the Commission's obligation to comply with CEQA to the BLM. The conditions in the PMPD (that were developed prior to the completion of the analysis) are meaningless if they can be replaced by a yet-to-be completed Programmatic Agreement process. Although the Compliance Project Manager may continue to participate in the identification of impacts and the development of mitigation after Project approval, the Commission will not have any decision-making authority, including any opportunity to implement feasible mitigation, including avoidance, after Project approval. The Commission's abdication of its responsibility to evaluate and mitigate significant impacts to cultural resources violates CEQA.

Recommendation: The Commission must require the Applicant to gather sufficient data to enable Commission Staff to evaluate the significance of impacts to cultural resources. The Commission must require Staff to determine the associative values of the cultural resources now, prior to Project approval, rather than allow Staff to rely upon the Programmatic Agreement process managed by the BLM. The Commission must make its significance determinations and CEQA findings regarding significant impacts to cultural resources prior to approval of the Project and analyze the feasibility of mitigation now, during the Project design phase, prior to Project approval.

Soil and Water Resources

The PMPD proposes to approve to a 709 Mw preliminary LEDPA/Agency Preferred Alternative.

Staff recommends that the PMPD be vague about what Project is being approved. Specifically, Staff recommends the Committee change the language in the PMPD from the "709 Mw alternative" to the "BLM-preferred alternative." In other words, Staff recommends that the Committee defer to the BLM on what Project the Commission is approving in the PMPD.

CURE disagrees with Staff's proposal because it violates CEQA. Obviously, the Committee must specifically explain what Project the Committee recommends that the Commission approve and cannot defer to the BLM. If the Commission's decision fails to clearly define the Project being approved, the Commission's decision would violate CEQA. CEQA requires the Commission to include a stable, finite project description. The courts have repeatedly held that "[a]n accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR."[3]

[3] *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 193.

CEQA requires that a project be described with enough particularity that its impacts can be assessed.[4] "Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost ..."[5] "A curtailed, enigmatic or unstable project description draws a red herring across the path of public input."[6]

Recommendation: The Commission should wait until the Applicant provides a power plant proposal that the Corps and the U.S. Environmental Protection Agency have determined complies with Section 404 of the Clean Water Act and other applicable laws. Commission Staff should then analyze the environmental impacts of the final proposed Project and provide that analysis in a report that is subject to a 30-day public review and comment period, in accordance with CEQA.

Water Supply

The PMPD approves the use of the Dan Boyer well as the Project's water supply for 36 months – and possibly longer with a Project Amendment.

Staff concluded that the Dan Boyer well is not a reliable water supply and would pose significant unmitigable impacts to the sole source of drinking water for the region overlying the aquifer.

CURE agrees with Staff. There is not substantial evidence in the record to support a finding that the Dan Boyer well is an adequate or reliable water supply. CURE submitted expert testimony of hydrologist Dr. Chris Bowles that the Applicant underestimated the water needs of the Project. The PMPD does not address that evidence. Reliance on the Dan Boyer well would result in significant unmitigated impacts.

Recommendation: The Commission must condition the construction and operation of the Project on water from the Seeley Waste Water Treatment facility.

[4] *Id.* at 192.
[5] *Id.* at 192-193.
[6] *Id.* at 198.

Thank you for your attention to CURE's comments on the PMPD.

Dated: September 27, 2010

Respectfully submitted,

/s/

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Attorneys for the CALIFORNIA UNIONS FOR RELIABLE ENERGY

STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the Imperial Valley Solar Project (formerly known as SES Solar Two)	Docket No. 08-AFC-5

PROOF OF SERVICE

I, Valerie Stevenson, declare that on September 27, 2010, I served and filed copies of the attached CUE'S RESPONSE TO COMMENTS ON THE PRESIDING MEMBER'S PROPOSED DECISION. 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 http://www.energy.ca.gov/sitingcases/solartwo/Imperial_Valley_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 via email and by U.S. Mail with first-class postage thereon, fully prepaid and addressed as provided on the Proof of Service list to those addresses NOT marked "email preferred." An original paper copy and one electronic copy, mailed and emailed respectively, were sent to the Docket Office.

I declare under penalty of perjury that the foregoing is true and correct. Executed at South San Francisco, CA on September 27, 2010.

/s/
Valerie Stevenson

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EXHIBIT 1

STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the IMPERIAL VALLEY SOLAR PROJECT	Docket No. 08-AFC-5

OPENING TESTIMONY OF SCOTT CASHEN ON BEHALF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY ON BIOLOGICAL RESOURCES FOR THE IMPERIAL VALLEY SOLAR PROJECT

May 10, 2010

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Testimony of Scott Cashen
Imperial Valley Solar Project

Re: Biological Resource Impacts of the Imperial Valley Solar Project

Docket 08-AFC-5

Qualifications

Education

I have a Master's of Science Degree in Wildlife and Fisheries Science from the Pennsylvania State University, University Park. The degree program included coursework in Landscape Ecology, Biometrics, Statistics, Conservation Biology, and Wetland Ecology. For my thesis, I conducted seven seasons of independent research on avian use of restored wetlands. The U.S. Fish and Wildlife Service subsequently used my technical report as a model for other habitat restoration monitoring projects in Pennsylvania.

Work Experience

My employment experience has included work in the fields of wildlife biology, forestry, and natural resource consulting. Much of my work over the past two and a half years has involved review of environmental documents associated with development of large-scale solar energy facilities. To date, I have served as an expert on 12 different solar projects, 9 of which are being sited in the Mojave Desert. I am currently entering the second year of a two-year contract I hold with the State of California to conduct surveys for the Peninsular bighorn sheep near Anza-Borrego Desert State Park. I serve as a member of the scientific review team responsible for assessing the effectiveness of the US Forest Service's implementation of the Herger-Feinstein Quincy Library Group Act.

For the past two and a half years I have operated my own consulting business. I previously served as a Senior Biologist for TSS Consultants and ECORP Consulting. Other positions I have held have included conducting wildlife research for the National Park Service, the Point Reyes Bird Observatory, and the University of California. While in graduate school I served as an instructor of Wildlife Management and as a teaching assistant for a course on ornithology. A summary of my education and professional experience is attached to this testimony.

The testimony contained herein is based on my review of the environmental documents prepared for the Imperial Valley Solar Project ("Project"), and review of scientific literature on the biological resources known to occur in the Project area. In addition, I have conducted my own investigations and analyses on the Project's potential environmental impacts and alternatives. My testimony is based on the activities described above and the knowledge and experience I have acquired during more than 17 years of working in the field of natural resources management.

STATEMENT

I. The Project Would Result in Potentially Significant, Unmitigated Impacts to Special-Status Plants

I concur with the SA/DEIS's conclusion that the applicant's surveys were not adequate to assess the presence of special-status plant species within the Project area.[1] However, I disagree with the SA/DEIS's conclusion that the measures proposed in staff's Condition of Certification BIO-19 would reduce impacts to special-status plants to less than significant levels under CEQA.[2] As noted in the SA/DEIS, there is currently inadequate information on the presence of special-status plant species within the Project area.[3] Without reliable information on the species that occur—and as a result, the level and types of Project impacts on those species—the SA/DEIS 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. However, even if one accepts the presumption that all impacts can be mitigated, staff's proposed mitigation provides little certainty of the desired outcome, as will be described below.

A) STRATEGY FOR MITIGATING IMPACTS TO LISTED PLANT SPECIES IS UNPROVEN

The strategy for mitigating impacts to any State or federally listed species found on the Project site focuses on establishing a buffer zone around the population(s).[4] The size of the buffer would depend on the proposed use of the immediately adjacent lands, and it would include consideration of the plant's ecological requirements (e.g., sunlight; moisture; shade tolerance; edaphic, physical, and chemical characteristics) that are identified by the Designated Biologist (although there is no requirement for the Designated Biologist to examine the plant's ecological requirements).[5]

I believe it's worth pointing out that although the project technology would be exactly the same, staff on the Calico Solar Project concluded a 250-foot buffer would be needed for on-site plant protection[6] (staff on the Imperial Valley Solar Project has concluded that

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[1] [SA/DEIS] Staff Assessment and Draft Environmental Impact Statement and Draft California Desert Conservation Area Plan Amendment. SES Solar Two Project. p. C.2-20.
[2] SA/DEIS, p. C.2-37.
[3] SA/DEIS, p. C.2-20.
[4] SA/DEIS, p. C.2-98.
[5] *Id*.
[6] Calico Solar Project SA/DEIS, p. C.2-175.

a buffer of only 50-feet [and perhaps smaller] would be needed).[7] I believe the discrepancy highlights the fact that the SA/DEIS's approach to establishing adequate buffers is largely guesswork. Inherently, this may be the case because: (1) the ecological requirements of most plant species are poorly understood; and (2) there have not been any studies on the effects of SunCatchers installation (including changes to hydrology) on the surrounding microclimate.[8] The lack of information is compounded by knowledge that a project of this size (i.e., > 6,000 acres) will disrupt the ecological processes (e.g., seed dispersal, pollination, and gene flow) that may be necessary to maintain viable populations. As long as the effects of SunCatchers and the adequate buffer sizes needed for on-site plant conservation remain unknown, there is no scientific basis to conclude establishing the prescribed 50-foot buffer will mitigate Project impacts to a less than significant level.

Ultimately, maintaining islands of plants within a disturbance matrix cannot be relied on as an effective mitigation measure. The Energy Commission staff that evaluated the Ivanpah Solar Electric Project derived the same conclusion. Specifically, they concluded the approach was "infeasible to protect the special-status plants from significant indirect impacts (i.e., from introduction and spread of non-native plants, alterations of the local hydrology, higher than normal dust levels, etc.)."[9] A similar conclusion would likely be warranted for any special-status species within the Imperial Valley Project site, regardless of the buffer size.

B) STRATEGY FOR MITIGATING IMPACTS TO NON-LISTED PLANT SPECIES IS UNENFORCEABLE

The strategy for mitigating impacts to any non-listed special-status species (e.g., CNPS listed species) found on the site is comprised of two parts. First, the Condition of Certification directs the applicant to avoid impacts "where feasible."[10] However, the SA/DEIS does not define what is considered "feasible." Consequently, the condition is at the sole discretion of the applicant, and it is unenforceable. Second, for impacts that are not "feasible" and that would result in loss of more than 10% of the known individuals within an existing population, the SA/DEIS requires the project owner to preserve existing off-site occupied habitat (that is not already part of public lands) in perpetuity at a 2:1 mitigation ratio.[11] Thus, if avoidance is not feasible, the ability to mitigate impacts is entirely dependent on the assumptions that the applicant will first be able to identify sufficient quantities of occupied habitat on private lands; and then be able to acquire those lands from willing sellers. The record does not support these as reasonable assumptions. As an example, in the Ivanpah Solar Electric Generating System Project, Energy Commission staff was unable to locate <u>any</u> suitable private parcels that could serve as compensation habitat for proposed project impacts to special-status plant

[7] SA/DEIS, p. C.2-98.
[8] Calico Solar Project. Applicant's response to CURE data request 162.
[9] Energy Commission Staff's Rebuttal Testimony, Ivanpah Solar Electric Generating System. p. 28.
[10] SA/DEIS, p. C.2-98.
[11] SA/DEIS, p. C.2-99.

species.[12]

To evaluate whether the assumption was reasonable for the Imperial Valley Solar Project, I examined the CNDDB records of the species identified by the SA/DEIS as having a "moderate" or "high" potential of occurrence on the Project site.[13] A summary of these records is provided in Table 1.

Table 1. Number of CNDDB records, by land ownership, for special-status plant species having at least a "moderate" potential of occurring on the Project site.[14]

	Number of CNDDB records		
Common name	Public	Private	Unknown
Harwood's milk-vetch	27	2	14
Pink fairy duster	32	1	8
Crucifixion thorn	20	1	9
Flat-seeded spurge	1	-	3
Wiggins' croton	6	-	-
Baja California ipomopsis	1	-	-
Brown turbans	3	-	6
Hairy stickleaf	7	-	3
Slender woolly-heads	3	1	9
Thurber's pilostyles	26	-	-
Dwarf germander	3	-	2
Orcutt's woody-aster	28	1	1

Of the 12 species identified by the SA/DEIS as having a "moderate" or "high" potential of occurring on the Project site, only 5 have records of occurrence on private land. Whereas my examination was not exhaustive, it demonstrates that yet to be identified private land acquisition presents tremendous uncertainty, and cannot be relied on to conclude mitigation will reduce Project impacts to less than significant levels. To complicate this issue, the SA/DEIS lacks any financial security or enforcement mechanisms for the mitigation strategy, and the proposed verification measures would occur only after the Energy Commission's decision.

Based on the issues I have discussed above, it is my professional opinion that there is inadequate information to conclude the Project will mitigate all significant impacts to special-status plant species.

[12] Final Staff Assessment, Ivanpah Solar Electric Generating System. p. 6.2-40.
[13] SA/DEIS, Biological Resources Table 2.
[14] California Natural Diversity Database. 2009. Rarefind [computer program]. Version 3.1.0. Mar 2, 2010. Sacramento (CA): Wildlife & Habitat Data Analysis Branch. California Department of Fish and Game.

C) ADDITIONAL ISSUES WITH PROPOSED MITIGATION

I have the following additional comments with respect to proposed mitigation for impacts to special-status plants:

1. The ability of the SA/DEIS's proposed mitigation cannot be evaluated properly until: (a) the term "population" has been defined (e.g., local, regional, rangewide); (b) the term "sensitivity" has been defined (e.g., listing status, tolerance to disturbance, level of threats); and (c) information is provided on how soil features, extent of disturbance, and habitat structure will be quantified.[15] Most importantly, the SA/DEIS needs to establish the scale of analysis for impacts and compensation. For example, if compensation is required for Project impacts to a single plant whose stem occupies 10 cm^2, would the applicant be required to provide 20 cm^2 of compensation?

2. Whereas I agree with the SA/DEIS that additional surveys are required to obtain information on the occurrence of special-status species, I disagree with the presumption that the surveys will be adequate. Such a presumption requires knowledge of the methods that were used to obtain the data, including the qualifications of the individuals and the specific techniques used to conduct the surveys. This knowledge will not be available until the applicant has conducted the additional survey efforts. The applicant's survey reports must then be assessed by the Energy Commission, BLM, and intervenors to determine whether the survey data provide reliable information on the presence of special-status plants. To date, the applicant has been unable to conduct surveys properly, and thus provide reliable survey data. Therefore, there is no basis to conclude the future data will be reliable, and no basis to conclude the Energy Commission can make a decision before surveys and the prescribed Sensitive Plant Protection Plan are completed and evaluated.

3. Verification for special-status plant species mitigation includes preparation of a Sensitive Plant Protection Plan (Plan) if special-status plant species were detected during the 2010 surveys.[16] The Plan would be submitted to BLM's Authorized Officer, the CPM, USFWS, and CDFG at least 60 days prior to the start of any ground-disturbing activities. This condition would be infeasible if there are less than 60 days between Project approval and commencement of ground disturbance.

4. Verification for special-status plant species mitigation also includes the requirement for the project owner to provide to BLM's Authorized Officer, the CPM, USFWS, and CDFG a construction termination report within 30 days after completion of construction.[17] The report would discuss how mitigation measures described in the Plan were implemented. By delaying review until the Project is complete, the condition lacks a mechanism to ensure mitigation is enforceable and has a reasonable probability of success. Specifically, the SA/DEIS must indicate

[15] See SA/DEIS Condition of Certification BIO-19.
[16] SA/DEIS, p. C.2-99.
[17] SA/DEIS, p. C.2-100.

what will occur if the mitigation measures were not implemented, or were not successful.

D) FALL SURVEYS ARE REQUIRED TO ESTABLISH THE ENVIRONMENTAL SETTING

No fall surveys for special-status plant species have been conducted on the Project site, and the spring surveys that were conducted had several flaws. As a result, the SA/DEIS correctly concludes the applicant's botanical surveys have not provided an adequate basis for analyzing potential Project impacts.[18]

Due to the inadequacy of the Applicant's past botanical survey efforts, staff and BLM have proposed mitigation that requires surveys for special status plants in the spring and fall of 2010.[19] Although the SA/DEIS attempts to analyze the impacts and formulate mitigation measures before adequate survey data are obtained, the analysis and mitigation may change after the additional survey efforts are better able to identify impacts to rare plants. Outside review has proven to be a valuable part of the siting and compliance process, and the Commission should grant an opportunity for supplemental testimony once the applicant has submitted its data from the forthcoming survey efforts.

The applicant argues that fall surveys are not necessary to identify potentially significant impacts, and that "it is not clear why fall surveys are necessary since all species on the current focal species list have typical spring blooming periods."[20] Neither the SA/DEIS nor the applicant has documented the "typical blooming periods" of all the potentially occurring species identified by the SA/DEIS. Therefore, the applicant has not provided the justification necessary to support elimination of fall surveys. Importantly, the applicant cannot provide this justification because the applicant's statement is incorrect. For example, Thurber's pilostyles (*Pilostyles thurberi*), a species that the CNDDB reports has occurred on the Project site, blooms in January.[21]

The focal list referenced by the applicant was generated primarily through an examination of the CNDDB.[22] The CNDDB is not the only source of information that should be consulted to determine species likely to be on the Project site. Protocol survey guidance issued by the BLM, CDFG, and California Native Plant Society (CNPS) suggest the project proponent (or consultant) should contact experts that may have specific knowledge of potentially occurring plant species. As a result, I contacted Dr. Jim Andre, Director of the Sweeney Granite Mountains Desert Research Center for the University of California. Dr. Andre indicated that the following special-status species

[18] SA/DEIS, p. C.2-20.
[19] SA/DEIS, p. C.2-36.
[20] Applicant's Comments on the SA/DEIS. 2010 Mar 12. Imperial Valley Solar (formerly Solar Two) (08-AFC-5). p. 10.
[21] California Native Plant Society (CNPS). 2010. Inventory of Rare and Endangered Plants (online edition, v7-10a). California Native Plant Society. Sacramento, CA. Accessed on Thu, Mar. 18, 2010 from http://www.cnps.org/inventory.
[22] SA/DEIS, p. C.2-19.

have the potential to occur in the Project area, and that they may only be identifiable after late summer/early fall monsoonal rains:

- *Abronia villosa* var. *aurita*
- *Amaranthus watsonii*
- *Chamaesyce abramsiana*
- *C. platysperma*
- *Ditaxis claryana*
- *D. serrata* var. *californica* (albeit unlikely)
- *Horsfordia alata*
- *H. newberryi*
- *Hymenoxys odorata*
- *Penstemon thurberi*
- *Pilostyles thurberi* (mid-winter)
- *Proboscidea althaeifolia*
- *Teucrium cubense* ssp. *depressum*

I also contacted Dr. Bruce Pavlik, a recognized expert on desert plant ecology. According to Dr. Pavlik, the Project site is "likely to have summer-active plant species." As a result, Dr. Pavlik recommended summer-fall surveys.

In addition to failing to provide the scientific foundation to justify eliminating the fall survey, in arguing all potentially occurring species would be identifiable in the spring, the applicant is misusing the CNDDB. According to the CDFG, "we cannot and do not portray the CNDDB as an exhaustive and comprehensive inventory of all rare species and natural communities statewide."[23] Further, according to the BLM special-status plant species protocol for NEPA compliance, "the lack of data should not be used as verification that the species does not exist in a given location."[24]

By limiting the focal species to only those species identified by the CNDDB, the applicant has failed to acknowledge the limitations of the database and the general lack of knowledge of rare plant distribution throughout the desert. These limitations are acknowledged in the various protocol survey guidelines, including the BLM protocol, which requires each plant to be identified to the taxonomic level necessary to determine rarity and listing status.[25] Limiting target species to those on a predetermined list is not a reliable means of establishing existing conditions. Nonetheless, the applicant continues to promote this unreliable approach. In conclusion, I agree with the SA/DEIS that fall surveys are needed and should be performed to identify impacts to rare plants on the Project site. The Committee should allow further briefing when the fall survey results are

[23] California Natural Diversity Database Info [internet]. Sacramento: California Department of Fish and Game; [cited 2010 Apr 29]. Available from: http://www.dfg.ca.gov/biogeodata/cnddb/cnddb_info.asp.
[24] Bureau of Land Management. 2009. Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species.
[25] *Id.*

obtained to evaluate the adequacy of the survey effort and any new information that the surveys yielded regarding potentially significant impacts and the need for mitigation.

II. The Project Would Result in Potentially Significant, Unmitigated Impacts toFlat-Tailed Horned Lizard

The flat-tailed horned lizard (FTHL) is proposed for listing under the Endangered Species Act because of population declines associated with widespread habitat loss, fragmentation, and degradation.[26] Without substantial, meaningful, and enforceable mitigation, the Project will be a significant contributor to the continued decline of the species.

The SA/DEIS proposes to mitigate project impacts to FTHL through (1) use of clearance surveys to capture and relocate FTHL; and (2) the requirement that the Applicant submit funds for mitigation measures such as land acquisition and habitat rehabilitation. The details of this mitigation strategy have not been resolved. As a result, the SA/DEIS did not, and could not, conclude that impacts can be mitigated to a level that is less than significant.[27] I anticipate submitting supplemental testimony on this topic when additional information about the mitigation strategy is provided by Commission Staff, BLM, or the Applicant. Therefore, the testimony herein focuses on the significance of the proposed impacts and the problems with the mitigation currently proposed by the SA/DEIS.

A. MAGNITUDE OF PROJECT IMPACTS

i. Impacts to the Population

The SA/DEIS estimates the Project site could contain between 2,000 to 5,000 FTHLs.[28] Although there will be efforts to salvage FTHLs prior to Project construction, information from translocation studies suggests lizards that are captured, handled, and moved will experience high mortality.[29] Lizards that escape capture (e.g., go undetected) are not likely to survive Project construction and operation. These two issues indicate the possibility that thousands of FTHL will die as a result of the Project.

To provide some context to a population decline of this size, it is useful to compare it against the FTHL population estimate from the nearby West Mesa Management Area (MA). In 2003 (the most recent year for which an estimate is available), there were an estimated 10,849 FTHL (95% CI 3,213 – 23,486) in the entire West Mesa MA.[30]

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[26] Flat-tailed Horned Lizard Interagency Coordinating Committee. 2003. Flat-tailed horned lizard rangewide management strategy, 2003 revision. 80 pp. plus appendices. p. 23.
[27] SA/DEIS, p. C.2-61.
[28] SA/DEIS, p. C.2-22.
[29] Dodd CK Jr., RA Seigel. 1991. Relocation, repatriation, and translocation of amphibians and reptiles: Are they conservation strategies that work? Herpetologica 47(3): 336-350.
[30] Flat-tailed Horned Lizard Interagency Coordinating Committee. 2009 Mar. Annual Progress Report: Implementation of the Flat-tailed Horned Lizard Rangewide Management Strategy,

Therefore, the Project could adversely affect a population that is roughly half the size of the population within the entire West Mesa MA. The significance of this impact should not be understated. The MAs were designed to be the core areas for maintaining self-sustaining populations of FTHLs in perpetuity, based on the best information available at the time of their establishment.[31] There are only five MAs in the United States. Despite establishment of the MAs, the FTHL is proposed for listing under the Endangered Species Act. This suggests establishment of the MAs has not averted potential listing of the species, and that additional habitat conservation may be required (i.e., outside of existing MAs) for species recovery.

ii. Direct Impacts to Existing Habitat

The Project would remove 6,063 acres of FTHL habitat for at least the 40 year expected life of the Project. Even considered in isolation, the loss of 6,063 acres of habitat represents a tremendous impact for a species that is proposed for listing due to habitat loss.

iii. Indirect Impacts to Existing Habitat

The proposed Project site is within an area that is relatively undisturbed, and that provides generally continuous connectivity of natural community types from the southern extent of the Yuha Desert MA to the northern extent of the West Mesa MA.[32] The applicant has proposed locating the Project in the middle of this undisturbed landscape. Placing the Project in the proposed location would cause considerable fragmentation to the remaining FTHL habitat outside of the MAs.

The fragmentation that would be caused by the proposed Project would have numerous biological consequences that were not mitigated in the SA/DEIS. Two of these consequences, "edge effects" and loss of connectivity, are likely to be particularly severe on the FTHL population. As a result, I have discussed them in greater detail below.

a. Edge Effects-

Two studies have examined the response of FTHL to boundary processes between natural and anthropogenic desert landscapes (i.e., the edge effect). Both studies concluded a significant adverse edge effect on FTHLs. Specifically, Barrows et al. (2006) concluded "the only aeolian sand species that demonstrated an unambiguous negative response to the anthropogenic habitat edges was the flat-tailed horned lizard,"[33] and Young and Young (2000) concluded "[d]istance to disturbance was found to be a

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January 1, 2008 – December 31, 2008.

[31] Flat-tailed Horned Lizard Interagency Coordinating Committee. 2003. Flat-tailed horned lizard rangewide management strategy, 2003 revision. 80 pp. plus appendices. p. 49.

[32] Ecosphere Environmental Services. 2009 Apr 21. SES Solar Two AFC Supplemental Cumulative Analysis. p . 15.

[33] 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.

highly significant factor in whether or not flat-tailed horned lizards were present. Probability of presence increased significantly with increasing distance from disturbance, indicating a negative indirect effect to at least 450 m away from agricultural or urban areas."[34] Given the configuration of the Project, and assuming an edge effect to 450 m, I estimate the Project will have an indirect, adverse effect on 2,800 acres outside of the Project boundaries. Not only are these impacts rather substantial, but they would extend into the Yuha Desert MA, thus reducing its value as a reserve. Incredibly, although the literature is unequivocal about adverse edge effects on FTHL, the SA/DEIS provides very little analyses of the impacts, and absolutely no compensatory mitigation (for indirect impacts).

b. Loss of Connectivity Between Reserves-

Mitigation for impacts to the FTHL is governed by the FTHL Rangewide Management Strategy (RMS). According to the RMS, "[s]ignatory agencies incorporate RMS measures into their land management plans. Compliance with the National Environmental Policy Act (NEPA) and other applicable federal and state laws will be achieved through these management plans or revisions."[35]

The RMS concludes some movement of FTHLs may occur among the Yuha Desert, West Mesa, and Borrego Badlands MAs, and that maintaining corridors among the MAs is "an action that must be taken to prevent significant declines in population or habitat quality."[36] The RMS specifically identifies lands between the Yuha Desert and West Mesa MAs as potential habitat corridors that should be maintained. This is the area proposed for the Project site.

According to the RMS:

1. *Planned actions provide guidance for managers to maintain sufficient habitat to provide for interchange of FTHLs between MAs, where habitat corridors persist. In this way, those naturally adjoining populations of FTHLs will be able to interbreed, helping to maintain genetic vigor, and natural recolonization could occur in the case of extirpation from local populations.*[37]
2. *Activities in potential habitat corridors between MAs and the RA shall be regulated or mitigated so that at least occasional interchange of FTHLs occurs among adjacent populations. Potential habitat*

[34] Young KV and AT Young. 2005. Indirect effects of development on the flat-tailed horned lizard. Final Report submitted to Arizona Game and Fish Department, Yuma. 11 pp.
[35] Flat-tailed Horned Lizard Interagency Coordinating Committee. 2003. Flat-tailed horned lizard rangewide management strategy, 2003 revision. 80 pp. plus appendices. p. *i.*
[36] Flat-tailed Horned Lizard Interagency Coordinating Committee. 2003. Flat-tailed horned lizard rangewide management strategy, 2003 revision. 80 pp. plus appendices. p. 45.
[37] Flat-tailed Horned Lizard Interagency Coordinating Committee. 2003. Flat-tailed horned lizard rangewide management strategy, 2003 revision. 80 pp. plus appendices. p. 70.

corridors include lands between West Mesa and Yuha Desert MAs.[38]

Activities inherent in Project construction and operation would function as a barrier to FTHL movement that is unmitigated in the SA/DEIS. The SA/DEIS proposed no mitigation for impacts to FTHL movement between MAs, despite clear guidance from the RMS. As a result, the Project will almost completely isolate the Yuha Desert MA from the other MAs (Figures 1 and 2). If left unmitigated, the failure to maintain corridors between the MAs is likely to have long-term consequences on the conservation of FTHL.

The applicant identified interference with the movement of FTHL between the West Mesa and Yuha Desert MAs as a significant impact.[39] The conclusion of the SA/DEIS is less clear. It states:

> *"[t]hough Interstate 8 may serve as a barrier for movement between the Yuha Desert FTHL Management Area (MA) and the proposed project site, the large culverts under the highway which are in excess of 200 feet, may allow wildlife movement between the two suitable FTHL areas. It is unlikely that FTHL would use the culverts to move between the MA and the proposed project site due to the long distance between these areas and lack of light along the length (Painter and Ingraldi 2007)."*[40]

These statements are particularly confusing because the research conducted by Painter and Ingraldi (2007) does not support the conclusion presented in the SA/DEIS. In fact, Painter and Ingraldi's research may indicate the exact opposite. They reported: "[d]ark culverts were used more frequently (9 crossings) than culverts with skylights (3 crossings)."[41] With respect to length, Painter and Ingraldi did not present any data to suggest FTHL would avoid use of long culverts. Ultimately they concluded, "the evidence did not reveal a strong selection for or against any culvert type."[42] Regardless of FTHL use of culverts, some FTHL will cross roads to to get to the Project site and move between MAs. The SA/DEIS does not propose any mitigation or avoidance to maintain connectivity through the Project site.

Although the value of a particular corridor needs to be evaluated on a case-by-case basis, value is generally a function of reserve size, number of reserves, interconnectivity among reserves, and spatial scale. The RMS implements a conservation strategy based on establishment of five, relatively large, reserves (i.e., MAs). In designating the reserve system, the FTHL Conservation Team conducted population viability analyses.

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[38] Flat-tailed Horned Lizard Interagency Coordinating Committee. 2003. Flat-tailed horned lizard rangewide management strategy, 2003 revision. 80 pp. plus appendices. p. 30.
[39] AFC, Ecosphere Environmental Services. 2009 Apr 21. SES Solar Two, LLC. Supplemental Cumulative Analysis, p. 14, 27.
[40] SA/DEIS, p. C.2-22.
[41] Painter ML, MF Ingraldi. 2007. Use of Simulated Highway Underpass Crossing Structures by Flat-Tailed Horned Lizards (*Phrynosoma mcallii*), Final Report 594. Arizona Department of Transportation, Phoenix, Arizona.
[42] *Id.*

According to the RMS "ideally, these analyses would define an initial population size and reserve size needed to support a viable population for a specified time interval, such as 100 or 500 years. Unfortunately, population demographics and stochasticity in possible reserves (MAs) are not adequately understood to provide this information."[43]

Whereas each of the MAs is believed to contain viable FTHL populations, no definitive data exist on population dynamics.[44] Whatever the true ability of the MAs to support viable FTHL populations, they remain vulnerable to natural catastrophes (e.g., drought, fire) and environmental uncertainty (e.g., changes in weather, food supply, predators and parasites). These factors should be considered in the context of the Theory of Island Biogeography, which dictates all isolated populations eventually go extinct. Without corridors, there is no ability for an organism to repopulate an area that has experienced a local extinction. Therefore, ecological principles dictate maintenance of corridors is essential to the long-term conservation of the FTHL. The SA/DEIS must address the significant impact that the Project would have on FTHL corridors.

B. RELOCATION STRATEGY

The SA/DEIS proposes removal surveys to move FTHL "out of harm's way."[45] The measures proposed by the SA/DEIS to minimize mortality from capture, handling, and transfer of FTHLs are relatively sound. However, moving lizards out of "harm's way" only partially addresses their survivorship. First, the SA/DEIS lacks the verification measures needed to ensure the surveys are effective in locating FTHLs. FTHLs are notoriously difficult to detect, and any that remain on the site after the clearance surveys will likely die during Project construction and operation. Second, the SA/DEIS lacks any information on translocation sites, the habitat suitability of those sites, and the monitoring that will accompany translocation. The Applicant needs to develop a detailed translocation plan that is thoroughly vetted before the Energy Commission's decision. 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 FTHLs, as well as an appraisal of probable dispersal patterns.
2. A detailed description of how FTHLs will be detected, and a means of documenting the effectiveness of the detection techniques. The latter objective could be accomplished through a series of "intensive surveys," similar to those used to document the accuracy of desert tortoise surveys.
3. An experimental, controlled trial, in which the initial translocation strategy is evaluated, then modified to improve the likelihood of success.
4. A detailed description of the monitoring and adaptive management measures that will be implemented after FTHLs are released.

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[43] Flat-tailed Horned Lizard Interagency Coordinating Committee. 2003. Flat-tailed horned lizard rangewide management strategy, 2003 revision. 80 pp. plus appendices.
[44] *Id.*
[45] SA/DEIS, p. C.2-55.

Currently there are no performance standards associated with FTHL translocation requirements, so this as yet unproven and deferred mitigation strategy is improper and cannot be relied upon to show impacts to FTHL will be reduced to a level that is less than significant.

I have made the following additional conclusions related to Condition of Certification BIO-9 (FTHL clearance surveys):

1. The SA/DEIS indicates "[r]emoval surveys would be conducted by experience [*sic*] biological monitors only during appropriate survey conditions. The surveys shall be conducted from April 1 through September 30 when air temperatures are between 25 and 37°C (75 and 100°F). Surveys would not be conducted during inclement weather conditions (e.g., rain, high winds) that could affect the movement of FTHLs. FTHL removal from the area could continue outside of protocol survey periods since the intent is to move animals from harm's way."[46]
    a. The SA needs to define what constitutes an experienced biological monitor and specify how the measure will be verified. Given the difficulty of detecting FTHL and the typically low FTHL detection rates, the monitor(s) should have prior experience conducting FTHL clearance surveys.
    b. Permitting surveys to continue outside of protocol survey periods "since the intent is to move animals from harm's way" appears to conflict with the requirement for surveys "only during appropriate survey conditions." Whereas it is true the intent of the surveys is to move FTHL out of harm's way, satisfying that intent requires surveys when the organism is most likely to be detected and captured (i.e., the protocol survey period). There is no scientific basis for allowing clearance surveys outside of the protocol survey period and it should not be allowed. The RMS dictates *all surveys* should be conducted from April through September.[47]
2. The SA/DEIS indicates "[i]f FTHL is detected during the clearance surveys the biological monitors shall move it to the nearest suitable habitat outside of harm's way or relocated off-site as approved by the FTHL ICC or hold the captured FTHL for later release."[48] To ensure proper implementation, the SA needs to define what is considered "suitable habitat."
3. The Condition's verification measures include having the Designated Biologist submit a report within 30 days of completion of FTHL clearance surveys.[49] The report would describe how mitigation measures have been satisfied, and it would include the FTHL survey results, capture and release locations of any FTHL encountered, and any other information needed to demonstrate compliance with

[46] SA/DEIS, p. C.2-83.
[47] Flat-tailed Horned Lizard Interagency Coordinating Committee. 2003. Flat-tailed horned lizard rangewide management strategy, 2003 revision. 80 pp. plus appendices.
[48] *Id.*
[49] *Id.*

the measures described in the Condition. The Condition's verification lacks feasibility, certainty, and a mechanism for enforcement. Specifically,

a. The measure omits the requirement for the applicant to report compliance with the survey *methods* described in the Condition.

b. Given the phased nature of the Project, the requirement to submit a report within 30 days after completion of FTHL clearance surveys enables the applicant to conduct substantial ground disturbance before any reports are submitted. As a result, the SA/DEIS lacks a means for approving clearance surveys before ground disturbance occurs.

C. COMPENSATION STRATEGY

The mitigation proposed by the SA/DEIS improperly allows a net loss of FTHL habitat. To mitigate for habitat loss and potential take of FTHL, the SA/DEIS requires the project owner to pay the BLM a monetary equivalent for 6,619.9 acres of "land suitable for these species."[50] However, Condition of Certification BIO-10 negates the ability of the proposed compensation to fully mitigate habitat loss by allowing (a) compensation lands to be "poor quality habitat";[51] and (b) compensation funds to be applied to educational purposes or management actions "deemed necessary by the FTHL ICC."[52] By authorizing these uses, the SA/DEIS conflicts with the RMS's stated goal of preventing a net loss of FTHL habitat.[53]

The SA/DEIS omits compensation for impacts along the proposed reclaimed water pipeline route. The SA/DEIS justifies this omission by stating "the construction activities would occur mainly in the developed/disturbed portions in and along the Evan Hewes Highway."[54] I do not agree with the SA/DEIS's justification, because (a) approximately 45 percent (13 acres) of the pipeline route will be within native habitat,[55] and (b) the SA/DEIS has failed to address the indirect impacts posed by the water pipeline. With respect to the latter, the RMS states:

> *A project's indirect effects on FTHLs should be considered when determining compensation. For example, ROW grants for aboveground structures such as roads, pipelines, towers, or similar facilities can have adverse impacts to FTHLs beyond the areas that are proposed to be disturbed. First, such disturbances have been shown to attract FTHL predators. For example, roads may attract round-tailed ground squirrels (Garland and Bradley 1984), and towers can provide perching areas for loggerhead shrikes and American kestrels. Second, construction vehicles can introduce invasive weeds that degrade FTHL habitat. Last, vehicles from increased authorized and unauthorized traffic on maintenance*

[50] SA/DEIS, p. C.2-85.
[51] *Id.*
[52] SA/DEIS, p. C.2-42.
[53] *Id.*
[54] SA/DEIS, p. C.2-42.
[55] SA/DEIS, p. C.2-30.

roads can cause FTHL mortality. If these and other adverse indirect effects (e.g., habitat fragmentation, decreased FTHL density near roads) cannot be mitigated (with FTHL barriers or corridors, for e.g.), compensation for indirect effects will be required.[56]

D. CONCLUSION

The ability of the SA/DEIS to offset significant Project impacts to FTHL is best summarized by examining the factors that have led to the species being proposed for listing under the Endangered Species Act: habitat loss, fragmentation, and degradation.[57] First, the Project will eliminate over 6,000 acres of occupied FTHL habitat, without replacement. Therefore, it's very clear that it will result in habitat *loss*. Second, the Project will perforate the landscape, resulting in considerable habitat *fragmentation*. The adverse effects of the fragmentation (i.e., edge effects and loss of connectivity) remain unmitigated. Finally, it has been well established that urban development, pipeline, road and powerline construction destroy vegetation cover and expose the soil to wind erosion, which is the principle mechanism of land *degradation*.[58] I believe the SA/DEIS establishes habitat degradation as a result of the Project would be inevitable, in stating: "effectiveness of revegetation in an arid environment is difficult, of limited effectiveness, and capable of recovery only over a very long-term time frame."[59] As a result of these issues, it is my principal conclusion that the SA/DEIS has failed to reduce impacts to the FTHL to less than significant levels.

III. The Project Would Result in Potentially Significant, Unmitigated Impacts to Burrowing Owls

The burrowing owl (*Athene cunicularia*) is listed as a CDFG Species of Special Concern and a Bureau of Land Management Sensitive species. Burrowing owl nesting habitat consists of open areas with burrows.[60] Habitats include dry open rolling hills, grasslands, fallow fields, sparsely vegetated desert scrub with gullies, washes, arroyos, and edges of human disturbed lands.[61] The Imperial Valley is regarded as a population stronghold for the burrowing owl, and it currently has one of the largest and most dense

[56] [emphasis added] Flat-tailed Horned Lizard Interagency Coordinating Committee. 2003. Flat-tailed horned lizard rangewide management strategy, 2003 revision. 80 pp. plus appendices. p. 64.
[57] 58 Fed. Reg. 62624 (November 29, 1993), Proposed Rule to List Flat-tailed Horned Lizard as Threatened.
[58] Okin GS, B Murray, WH Schlesinger. 2000. Degradation of sandy arid shrubland environments: observations, process modelling, and management implications. Journal of Arid Environments Vol. 47, No. 2, pp. 123–144.
[59] SA/DEIS, p. C.13-12.
[60] Bates C. 2006. Burrowing Owl (*Athene cunicularia*). In The Draft Desert Bird Conservation Plan: a strategy for reversing the decline of desert-associated birds in California. California Partners in Flight. http://www.prbo.org/calpif/htmldocs/desert.html.
[61] *Id.*

populations throughout the species' range.[62] A recent study in the Imperial Valley documented owls nesting primarily along drains (43%), delivery ditches (43%), and canals (11%).[63]

The SA/DEIS fails to provide a meaningful assessment of Project impacts on burrowing owls. In particular, the SA/DEIS fails to provide reliable information on the presence and abundance of owls within the Project area, and it lacks mitigation consistent with the guidelines issued by CDFG or the California Burrowing Owl Consortium.

Information on owl presence and abundance in the Project area was achieved through "incidental observations."[64] Protocol surveys (or any focused surveys) for burrowing owls were never conducted. Failure to conduct protocol surveys is a violation of CEC siting regulation Appendix B (g)(13)(D)(i). This regulation requires the applicant to follow protocol surveys if such protocols exist. In addition to meeting CEC regulations, adherence to the protocol ensures uniform standards when surveying burrowing owl populations and evaluating impacts from development projects.[65] The California Burrowing Owl Consortium Protocol and Mitigation Guidelines warn lead agencies against deferring impact evaluations, such as has been done for this Project:

> *Owls can be affected by disturbance and habitat loss, even though there may be no direct impacts to the birds themselves or their burrows. There is often inadequate information about the presence of owls on a project site until ground disturbance is imminent. When this occurs there is usually insufficient time to evaluate impacts to owls and their habitat. The absence of standardized field survey methods impairs adequate and consistent impact assessment during regulatory review processes, which in turn reduces the possibility of effective mitigation. These guidelines are intended to provide a decision-making process that should be implemented wherever there is potential for an action or project to adversely affect burrowing owls or the resources that support them.*[66]

Protocol surveys need to be conducted so that the applicant can provide an adequate analysis of Project impacts to burrowing owls, and so that the resource agencies can enforce mitigation commensurate with Project impacts. In the Barstow-area Calico Solar siting proceeding, the same applicant (Stirling Energy Systems LLC) and the same consultant (URS Corporation) made an identical attempt to soley rely upon incidental information for its impact assessment to burrowing owl. The BLM and Energy

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[62] DeSante DF, ED Ruhlen, DK Rosenberg. 2004. Density and abundance of burrowing owls in the agricultural matrix of the Imperial Valley, California. Studies in Avian Biology No. 27: 116-119.

[63] Rosenburg, DK and KL Haley. 2004. The ecology of burrowing owls in the agroecosystem of the Imperial Valley, California. Studies in Avian Biology No. 27: 120-135.

[64] AFC, p. 5.6-6.

[65] The California Burrowing Owl Consortium. 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. Available online at: http://www.dfg.ca.gov/wildlife/species/docs/boconsortium.pdf.

[66] *Id.*

Commission staff in Calico deemed the impact assessment inadequate and subsequently required the applicant to conduct protocol burrowing owl surveys. The survey data provided for the Imperial Valley Solar Project are no more reliable than those initially provided for Calico Solar.

The SA/DEIS indicates "the applicant's proposed impact avoidance, minimization, and mitigation measures [for burrowing owls] would not be sufficient to reduce impacts to less than significant levels under CEQA."[67] However, the SA/DEIS does not establish why it reached this conclusion, nor does it clearly establish how mitigation proposed in the SA/DEIS will effectively reduce impacts to less than significant levels.

A. PROPOSED MITIGATION

The project would result in permanent loss of 6,185 acres that is currently used by burrowing owls for nesting and foraging.[68] Staff considers these impacts to be significant under CEQA.[69] Although habitat loss has been identified as one of the primary threats to California's burrowing owl population,[70] and although the Imperial Valley Solar Project would contribute incrementally to this significant loss under CEQA,[71] the SA/DEIS provides no mitigation for the Project's impacts to burrowing owl habitat, such as land acquisition. Further, the compensatory mitigation required for impacts to flat-tailed horned lizard habitat will not necessarily compensate for impacts to burrowing owls, because (a) compensatory mitigation for the FTHL may simply entail FTHL management actions (e.g., fencing, signage, habitat restoration) that would do very little to offset impacts to burrowing owls;[72] and (b) the SA/DEIS provides no mechanism for assuring compensatory mitigation will provide suitable habitat for burrowing owls.

Condition of Certification BIO-16 provides mitigation measures for Project impacts to burrowing owls. BIO-16 measure #1 requires the applicant to "[c]omplete a pre-construction survey for burrowing owls for any areas subject to disturbance from construction no less than 30 days prior to the start of initial ground disturbance activities. If burrowing owls are present within 500 feet of the project site or linear facilities, then the CDFG burrowing owl guidelines (CDFG 1995) shall be implemented."[73] The proposed mitigation does not meet the requirements of Section 21081.6 of CEQA for the following reasons:

1. The mitigation measure lacks certainty due to the failure to define "disturbance." Besides earth moving activities, burrowing owls may be disturbed by Project factors such as noise, night lighting, and altered hydrology. The mitigation measure also needs to specify the areas where

[67] SA/DEIS, p. C.2-38.
[68] SA/DEIS, p. C.2-37.
[69] *Id.*
[70] SA/DEIS, p. C.2-38.
[71] *Id.*
[72] SA/DEIS, p. C.2-85.
[73] SA/DEIS, p. C.2-91.

burrowing owl surveys are required.

2. The mitigation measure lacks any performance standards, including the methods for conducting the pre-construction survey, the minimum level of effort required, the qualifications of the surveyor(s), and whether it will be permissible for the applicant to conduct burrowing owl surveys concurrent with other pre-construction survey activities.

3. The mitigation measure's requirement to have the applicant implement CDFG burrowing owl guidelines if burrowing owls are present within 500 feet of the project site or linear facilities is unnecessarily vague and thus lacks feasibility. First, according to CDFG burrowing owl guidelines, a site should be assumed occupied if at least one burrowing owl has been observed occupying a burrow there within the last three years.[74] Because a burrowing owl was detected along the proposed transmission line within the last three years,[75] the SA/DEIS—by definition—requires the applicant to implement CDFG mitigation guidelines regardless of future survey results. As a result, the proposed condition permits an uncertain outcome for what CDFG defines as a certain impact. Second, if surveys are limited to areas exposed to ground disturbance, there will be no mechanism for obtaining information on owl presence within 500 feet of the project site or linear facilities. Finally, the condition lacks certainty over the portions of the CDFG mitigation guidelines required of the applicant. For example, CDFG mitigation guidelines state burrowing owl surveys should be conducted during both the wintering and nesting seasons, unless the species is detected on the first survey.[76] This presents a scenario of two mutually contradictory requirements, which presumably is not the intent of the SA/DEIS.

BIO-16 measure #2 requires the applicant to monitor burrowing owl pairs within 500 feet of any activities that exceed ambient noise and/or vibration levels.[77] The proposed mitigation does not meet the requirements of CEQA for the following reasons:

1. It lacks compliance standards (i.e., success criteria).
2. It lacks a schedule for monitoring compliance.
3. It lacks a means of recording compliance with any established standards.
4. It lacks an enforcement mechanism and provisions for responding to failure of the mitigation measure.
5. It does not establish how ambient noise and/or vibration levels will be measured.

[74] California Department of Fish and Game. 1995. Staff Report on Burrowing Owl Mitigation.
[75] AFC, Biological Resources, Figure 6.
[76] California Department of Fish and Game. 1995. Staff Report on Burrowing Owl Mitigation.
[77] SA/DEIS, p. C.2-92.

BIO-16 measure #3 requires the applicant to establish a 500-foot set back from any active burrow and construct additional noise/visual barriers (e.g., haystacks or plywood fencing) to shield the active burrow from construction activities. It further requires the applicant to post signs (in both English and Spanish) designating presence of a sensitive area.[78] The proposed mitigation does not meet the requirements of CEQA for the following reasons:

1. It lacks compliance standards (i.e., success criteria).
2. It lacks a schedule for monitoring compliance.
3. It lacks an enforcement mechanism and provisions for responding to failure of the mitigation measure.

BIO-16 measure #4 requires the applicant to passively relocate all owls occupying burrows that would be temporarily or permanently impacted by the Project. Although the measure will assist in avoiding direct impacts to owls, the measure fails to incorporate measures to minimize the adverse effects of evicting owls from their burrows. Recommended guidelines for minimizing indirect impacts to evicted owls have been established by the CDFG, which serves as the trustee agency. CDFG's recommended mitigation includes:

1. Acquiring and permanently protecting a minimum of 6.5 acres of foraging habitat (calculated on a 100 m {approx. 300 ft.} foraging radius around the burrow) per pair or unpaired resident bird. The protected lands should be adjacent to occupied burrowing owl habitat and at a location acceptable to the CDFG.[79]
2. Provision of at least two replacement burrows on the protected lands site for each occupied burrow that is destroyed.
3. Allowance of at least one week for evicted owls to become acclimated to alternate burrows prior to destruction of previously occupied burrows.
4. Having the project sponsor provide funding for long-term management and monitoring of the protected lands. The monitoring plan should include success criteria, remedial measures, and an annual report to the CDFG.

Each of these mitigation measures needs to be incorporated by Energy Commission staff and the BLM to ensure the Project meets the expectations established by the trustee agency.

The intent of pre-construction surveys for burrowing owls is "to ensure no additional, burrowing owls have established territories since the initial surveys."[80] They were never intended to serve as a substitute for protocol surveys, as suggested by the applicant and the SA/DEIS. The utility of the proposed pre-construction survey is further hampered by the SA/DEIS's proposed schedule for verification. Specifically, CDFG guidelines

[78] *Id.*
[79] California Department of Fish and Game. 1995. Staff Report on Burrowing Owl Mitigation.
[80] *Id.*

require the survey to be conducted within 30 days of ground disturbance, whereas the SA/DEIS requires the project owner to submit a report that describes when surveys were completed, observations, mitigation measures, and the results of the mitigation at least 30 days prior to the start of any project-related site disturbance.[81] As a result, the verification measure proposed by the SA/DEIS contradicts guidance issued by CDFG. In addition (and perhaps more importantly), it increases the possibility of "take" and violation of the federal law that protects migratory birds.

IV. The Project will Eliminate Golden Eagle Foraging Habitat and may not Comply with the Bald and Golden Eagle Protection Act

The USFWS requires a take permit to be issued for "take" of bald or golden eagles where the taking is associated with, but not the purpose of the activity, and cannot be practicably avoided.[82] Take includes causing a decrease in golden eagle productivity by substantially interfering with normal breeding, feeding, or sheltering behavior.[83] The SA/DEIS concludes the Imperial Valley Solar Project site provides suitable foraging habitat for golden eagles.[84] The SA/DEIS further concludes the loss of foraging habitat for golden eagles may require a permit for take under the Bald and Golden Eagle Protection Act.[85] Despite these conclusions, the SA/DIES lacks any discussion on the actions that will be taken to determine whether the Project will require mitigation and issuance of a take permit for impacts to golden eagle foraging habitat.

The USFWS considers the availability of nest sites and food as the limiting factors for raptor populations.[86] In examining these two factors: (1) Golden eagle nesting habitat (in the form of mountainous, rocky terrain) is abundant within 10 miles of the Project site (Figure 3); and (2) According to the applicant's survey data, jackrabbits and ground squirrels (i.e., the preferred prey) are present on the Project site and appear to be relatively abundant.[87]

Although the Project site provides foraging habitat for golden eagles and is within 10 miles of potential nest sites, it does not appear that there have been any efforts to establish whether golden eagle nests occur within the vicinity of the Project site. At a recent SA workshop, the Applicant's biologist Patrick Mock said that there are no potential nesting sites for golden eagles in a 10-mile radius around the Project. This contradicts the maps supplied by the Applicant that show rock outcrop areas near the Project site (see Figure 3).

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[81] SA/DEIS, p. C.2-92.
[82] SA/DEIS, p. C.2-57.
[83] *Id.*
[84] *Id.*
[85] SA/DEIS, p. C.2-57.
[86] 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.
[87] According to AFC, p. 5.6-9: "rodent tracks and burrows were commonly observed throughout the site."

The SA/DEIS lacks any information, or a determination, on the significance of Project impacts on golden eagles. Following the approach outlined by the Bald and Golden Eagle Protection Act, "the best scientific information available" indicates the Project's elimination of 6,063 acres of foraging habitat may result in take due to a decrease in productivity or nest abandonment (by substantially interfering with normal breeding, feeding, or sheltering behavior). Therefore, it is my opinion that under the provisions of the Bald and Golden Eagle Protection Act, the Applicant is required to survey for golden eagle nests in the Project area, or in the absence of a dedicated survey effort, the Applicant is required to seek take authorization for potential Project impacts to golden eagles.

V. The SA/DEIS Does Not Ensure Avoidance, Minimization, and Mitigation for Project Impacts to Nesting Birds

The Migratory Bird Treaty Act (Act) protects most of the bird species that may nest within the Project site. The Act makes it unlawful to cause a "take" to any migratory bird, part, nest, egg or product. To comply with the Act, the SA/DEIS directs the applicant to conduct vegetation-clearing activities outside of bird nesting season, "where practicable."[88] For construction activities that would occur during the nesting season, the SA/DEIS requires the applicant to conduct nesting bird surveys prior to ground disturbance activities. If an active nest is discovered during the surveys, a buffer zone would be established around the nest.

Avian population trends are highly correlated with nesting success.[89] These trends indicate aridland bird populations (overall) have declined nearly 30% since 1968, and the populations of more than 75% of aridland-obligate bird species are still declining.[90] Without effective mitigation, the Project would further contribute to these declines.

Scientific literature does not support the ability of a pre-construction nesting bird survey to serve as an effective technique in protecting all (or even most) nesting birds from take. Rather, research indicates nest finding is labor intensive and can be extremely difficult due to the tendency of many species to construct well-concealed or camouflaged nests.[91] [92] As a result, most studies that involve locating bird nests employ a variety of search techniques. These include flushing an adult from the nest, watching parental behavior (e.g., carrying nest material or food), and systematically searching nesting

[88] SA/DEIS, p. C.2-90.
[89] Martin TE, GR Geupel. 1993. Nest-Monitoring Plots: Methods for Locating Nests and Monitoring Success. J. Field Ornithol. 64(4):507-519.
[90] North American Bird Conservation Initiative, U.S. Committee, 2009. The State of the Birds, United States of America, 2009. U.S. Department of Interior: Washington, DC. 36 pages.
[91] DeSante DF, GR Geupel. 1987. Landbird productivity in central coastal California: the relationship to annual rainfall and a reproductive failure in 1986. Condor. 89:636-653.
[92] Baicich PJ, CJ Harrison. 1997. A guide to the nests, eggs, and nestlings of North American Birds. 2nd ed. London: Academic Press.

substrates.[93]

Previous studies involving nest detection have focused on nesting ecology (e.g., nest-site selection, reproductive success) where unknown nest detection rates are acceptable as long as sample size requirements are met.[94] Consequently, there have not been any studies that have attempted to quantify the effort required to locate all bird nests within an area. This lack of information, in conjunction with imperfect nest detection rates, makes it impossible to evaluate how effective pre-construction nest surveys are in preventing direct impacts to nesting birds. However, knowledge that nest detection is difficult and labor intensive suggests two pre-construction surveys is inadequate for large project areas. As a result of data gaps, the SA/DEIS has no basis to conclude the proposed pre-construction nest surveys will protect desert nesting birds from direct project impacts.

The inability of the proposed pre-construction nest surveys to serve as effective mitigation is confounded by the SA/DEIS's failure to include specific minimum, measurable performance standards. Verification measures associated with the proposed mitigation include provision of a letter-report describing the findings of the pre-construction nest surveys, including the time, date, and duration of the survey; identity and qualifications of the surveyor(s); and a list of species observed.[95] To meet the requirements of CEQA, minimum requirements for survey techniques, level of effort, and surveyor qualifications need to be established before the surveys are conducted, not after.

VI. The SA/DEIS Lacks an Assessment of Potential Project Impacts on the Colorado Desert Fringe-toed Lizard

The Applicant has indicated the Project site has suitable habitat for the FTHL, which is described as "sparsely vegetated desert scrub areas with fine, wind-blown (aeolian) sand deposits and shifting sand substrate."[96] Habitat for the Colorado Desert fringe-toed lizard (listed as BLM Sensitive and a California Species of Special Concern) is similar to that of the FTHL. It is described as "fine, loose, wind-blown sand dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, and sparse desert scrub."[97] According to the California Natural Diversity Database, there are several documented occurrences of Colorado Desert fringe-toed lizards within 10 miles of the Project site (Figure 4). Despite these facts, the SA/DEIS lacks any discussion of the Project's potential impacts on Colorado Desert fringe-toed lizards.

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[93] Martin TE, C Paine, CJ Conway, WM Hochacka. 1996. BBIRD field protocol. Montana Cooperative Wildlife Research Unit, Missoula (MT).
[94] Martin TE, GR Geupel. 1993. Nest-Monitoring Plots: Methods for Locating Nests and Monitoring Success. J. Field Ornithol. 64(4):507-519.
[95] SA/DEIS, p. C.2-91.
[96] AFC, p. 5.6-4.
[97] California Wildlife Habitat Relationships System. 2005. California Department of Fish and Game. California Interagency Wildlife Task Group. CWHR version 8.1 personal computer program. Sacramento (CA).

VII. The SA/DEIS Lacks a Valid Assessment of, and Mitigation for, Project Impacts on Sensitive Natural Communities and Associations

The SA/DEIS provides the following assessment of Project impacts on sensitive natural communities:

> *No sensitive natural vegetation communities occur in the survey area or within one mile of the proposed project boundaries (CDFG 2009). The natural vegetative communities that occur in the project area are not considered to be of high priority in the California Natural Diversity Database (CNDDB) (CDFG 2003). These vegetative communities are generally considered common enough to not be of concern (CDFG 2007).*[98]

The conclusion is flawed for the following reasons:

1. The reference cited (i.e., CDFG 2009) is to the CNDDB. Although the CNDDB can be a useful mechanism for determining presence, it cannot be used to conclude absence (as was done in the SA/DEIS). According to the CDFG, "we cannot and do not portray the CNDDB as an exhaustive and comprehensive inventory of all rare species and natural communities statewide."[99]
2. The reference cited to support the conclusion that vegetation communities on the site are "common enough to not be of concern" (i.e., CDFG 2007) is outdated, and may not reflect the most recent assessment of rarity.[100]

Based on my review of photographs, it appears sensitive natural communities and alliances *are present* on the Project site and within the one-mile boundary. These include the Smoke Tree Woodland alliance (rank G4 S3), the Big Galleta Shrub-Steppe alliance (rank G3 S2), White Bursage-Big Galleta (*Ambrosia dumosa-Pleuraphis rigida*) association, and the Creosote Bush-White Bursage-Big Galleta (*Larrea tridentata-Ambrosia dumosa-Pleuraphis rigida*) association (Figure 5). Several additional sensitive natural communities and alliances *may be* present given survey information provided by the applicant (e.g., plant species lists). These include Mesquite Wash Woodland, Mesquite Bosque, or Mesquite Thicket; Mixed Wash Woodland; Creosote Bush-White Ratteny-Big Galleta (*Larrea tridentata-Krameria grayi-Pleuraphis rigida*) association; Creosote Bush - Big Galleta (*Larrea tridentata-Pleuraphis rigida*) association; and the Creosote Bush - Big Galleta - Anderson's Wolfberry (*Larrea tridentata-Pleuraphis rigida-Lycium andersonii*) association.

The SA/DEIS must analyze and mitigate impacts to Sensitive Natural Communities and Associations.

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[98] SA/DEIS, p. C.2-11.
[99] California Natural Diversity Database Info [internet]. Sacramento: California Department of Fish and Game; [cited 2010 Apr 29]. Available from: http://www.dfg.ca.gov/biogeodata/cnddb/cnddb_info.asp.
[100] California Department of Fish and Game. 2009 Dec 28. List of California Vegetation Alliances. Sacramento: Biogeographic Data Branch.

VIII. The SA/DEIS Lacks the Information Necessary to Evaluate Impacts from Upgrades to the Seeley Wastewater Reclamation Facility

The SA/DEIS identifies the Seeley Wastewater Reclamation Facility (SWWRF) as the sole source of water for the Project, but does not provide any analysis of the upgrades needed for this facility to serve as the Project's water supply. The BLM and Energy Commission staff prepared an appendix to the SA/DEIS to address potential impacts from upgrades to the Seeley Wastewater Reclamation Facility (SWWRF).[101] With respect to biological resources, the appendix indicates the surveys necessary to properly document sensitive biological resources that may be affected by upgrades to the SWWRF have not yet been conducted. Specifically, the appendix states:

1. A hydrologic study is necessary to quantify how withholding water from the emergent wetland will affect the wetland habitat and any listed species that may occupy the affected habitat, including the federally listed endangered Yuma clapper rail.[102]

2. Focused surveys for sensitive bird species will be completed during the appropriate spring/summer survey periods in 2010 to determine whether the emergent wetland is occupied by sensitive species as part of the studies associated with the EIR for the SWWRF upgrades.[103]

The lack of the necessary survey data prohibits the ability to analyze biological resource impacts associated with the SWWRF. This is acknowledged in the appendix. Specifically, the appendix states:

1. This [hydrologic] study *may* identify significant impacts, but mitigation measures *may* be able to reduce the impacts to less than significant.[104]

2. The results of the protocol level surveys [for Yuma clapper rail] *may* identify significant impacts and appropriate mitigation would be required.[105]

The Appendix attempts to provide a mitigation strategy that would reduce all impacts to a level that is less than significant, however, due to the lack of information on the upgrade project's impacts to sensitive biological resources, the appendix lacks the ability to specify mitigation that would reduce impacts to less than significant levels. Instead, the appendix relies on vague mitigation measures that lack (a) certainty; (b) measurable performance standards; (c) authority; (d) continuity and consistency; and (e) feasibility. Each of these items is a requirement of the agencies involved in the CEQA process. Guidelines for meeting the requirements of CEQA Section 21081 state:

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[101] [AP.1] Appendix 1, Seeley Wastewater Reclamation Facility Improvements, Susan V. Lee, Docketed March 18, 2010.
[102] SA/DEIS, p. AP.1-12.
[103] *Id.*
[104] *Id.*
[105] *Id.*

a. Specify what is required to be done, how it is to be done, when it must be done, and who is responsible for ensuring its completion (i.e., "certainty").

b. Include specific minimum, measurable performance standards in all quantitative measures, and if possible, contingency plans if the performance standards are not met (i.e., "performance").

c. Measures which are not based on some other authority (i.e., zoning code, tree preservation ordinance, development agreement, impact fee ordinance, subdivision ordinance, etc.) are unenforceable (i.e., "authority").

d. Integrate measures with existing policy and regulatory systems, and inspection or review schedules (i.e., "continuity and consistency").

e. Avoid the trap of imposing mitigation measures that are based upon future activities of uncertain outcome (i.e., "feasibility").

Diversion of effluent from the SWWRF may adversely affect several sensitive biological resources. An analysis is included below for several species that may be affected.

A. SENSITIVE BIOLOGICAL RESOURCES THAT MAY BE IMPACTED

i. Yuma Clapper Rail

The federally-listed Endangered Yuma clapper rail (*Rallus longirostris yumanensis*) has the potential to occur in the channel between the SWWRF and the New River.[106] The species is known to inhabit freshwater marshes dominated by cattail or bulrush,[107] and it has been documented along the New River approximately two miles north of the SWWRF.[108]

According to the U.S. Fish and Wildlife Service (USFWS) "[m]inimum size of suitable habitats is unclear, but [Yuma clapper rails] have been found in areas as small as 2-3 acres depending on the quality of the mosaic."[109] The patch of habitat associated with the SWWRF is at least two acres.[110] However, because the habitat is connected to comparable habitat along the New River, the "patch" is actually much larger. In his

[106] BRG Consulting, Inc. 2003. Final Mitigated Negative Declaration and Environmental Assessment: Proposed Seeley Water / Wastewater Master Plans. p. 15, 31.
[107] US Fish and Wildlife Service. 2010. Species Profile: Yuma clapper rail [internet]. Environmental Online Conservation System. Available at: http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B00P.
[108] Dudek. 2009. Draft Mitigated Negative Declaration for the Seeley Wastewater Reclamation Facility Improvements, Imperial County, California. p. 4-21.
[109] US Fish and Wildlife Service. 2010. Species Profile: Yuma clapper rail [internet]. Environmental Online Conservation System. Available at: http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B00P.
[110] BRG Consulting, Inc. 2003. Final Mitigated Negative Declaration and Environmental Assessment: Proposed Seeley Water / Wastewater Master Plans. p. 16.

study of Yuma clapper rail habitats, Gould (1975) reported:

> *Good habitat in this division was characterized by two factors. First, the habitat, even though found in small parcels, forms a continuum making each small area part of a much larger area and not just an isolated patch. Yet the degree of separation of habitat areas separates rail territories and reduces conflict between pairs which might occur if the same amount of habitat were contained in one block.* [111]

According to the USFWS "[c]lapper rail habitat includes marshes along rivers, backwaters, and in drains or sumps supported by irrigation water (Eddleman 1989, Hinojosa Huerta et al. 2000). Most available habitat occurs in fixed locations where natural processes of marsh creation, destruction, and re-creation do not operate due to management control…"[112] These conditions appear comparable to those associated with the SWWRF. Consequently, it is my professional opinion that upgrades to the SWWRF may have negative impacts on the Yuma clapper rail.

a. *Potential Impacts*-

With respect to the Yuma clapper rail, the Draft MND for the SWWRF Project concluded:

> *Although SWWRF flows, contributing up to 0.15 cubic feet per second (cfs) of flows in the channel, will be discontinued, the channel will continue to receive flows from agricultural underdrain discharges and underdrain flow from a separate drinking water treatment plant. Water will still continue to drain into the channel thus maintaining the emergent wetlands vegetation at this location. Therefore, no impacts to the Yuma clapper rail, either directly or through habitat modifications, are expected to occur.*

No factual basis is provided to support the conclusion that the water from agricultural underdrain and the drinking water plant will be sufficient to support the emergent wetland vegetation in the channel. Moreover, the conclusion is inconsistent with the conclusion made by BRG Consulting, Inc. and information provided by David Dale of the Water District.[113] Specifically, in the MND that was conducted for the SWWRF in 2003, BRG Consulting, Inc. concluded "[r]elocation of the existing point of discharge, as proposed, would potentially result in the rapid demise of an approximately 2-acre wetland area, since the SWWRF effluent is the major water contributor to this

[111] Gould GI Jr. 1975. Yuma Clapper Rail Study – Census and Habitat Distribution. Wildlife Management Branch Administrative Report No. 75-2. Supported by Federal Aid in Wildlife Restoration Project W-54-R-7, Nongame Wildlife Investigations.
[112] US Fish and Wildlife Service. 2006. Yuma Clapper Rail 5-Year Review. Available at: http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B00P.
[113] David Dale, General Manager, Seeley County Water District [personal communication with Loulena Miles. 20 Jan 2010].

drainage."[114] The volume of water currently entering the channel from agricultural underdrain discharges and underdrain flow from the drinking water treatment plant is approximately the same as it was in 2003.[115] Mere speculation is an insufficient basis for the conclusion that emergent vegetation will be unaffected by the Project, and that the conclusions made by BRG Consulting, Inc. were incorrect. As a result, additional data and scientific justification is necessary to adequately analyze the potential impacts to Yuma clapper rail.

ii. California Black Rail

The California black rail (*Laterallus jamaicensis coturniculus*) is a State-listed Threatened species. Black rails occupy habitats similar to those of the clapper rail. According to the CDFG, black rails typically occur in the high wetland zones near the upper limit of tidal flooding, not in low wetland areas with considerable annual and/or daily fluctuations in water levels.[116] California black rails have been documented occurring within approximately two miles of the SWWRF.[117]

iii. Vermillion Flycatcher

The vermilion flycatcher (*Pyrocephalus rubinus*) is a CDFG Species of Special Concern. Nesting individuals inhabit cottonwood, willow, mesquite, and other vegetation in desert riparian habitat adjacent to irrigated fields, irrigation ditches, pastures and other open, mesic areas in isolated patches throughout central southern California.[118] Vermilion flycatchers have been documented occurring within approximately four miles of the SWWRF.[119]

iv. Least Bell's Vireo, Southwestern Willow Flycatcher, and Yellow-billed Cuckoo

The least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax trailli extimus*) are State and Federally-listed Endangered species. The western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) is a State-listed

[114] BRG Consulting, Inc. 2003. Final Mitigated Negative Declaration and Environmental Assessment: Proposed Seeley Water / Wastewater Master Plans. p. 31. [emphasis added].
[115] David Dale, General Manager, Seeley County Water District [personal communication with Loulena Miles. 20 Jan 2010].
[116] California Wildlife Habitat Relationships System. 2005. California Department of Fish and Game. California Interagency Wildlife Task Group. CWHR version 8.1 personal computer program. Sacramento (CA).
[117] California Natural Diversity Database. 2009. Rarefind [computer program]. Version 3.1.0. Jan 7, 2010. Sacramento (CA): Wildlife & Habitat Data Analysis Branch. California Department of Fish and Game.
[118] California Wildlife Habitat Relationships System. 2005. California Department of Fish and Game. California Interagency Wildlife Task Group. CWHR version 8.1 personal computer program. Sacramento (CA).
[119] California Natural Diversity Database. 2009. Rarefind [computer program]. Version 3.1.0. Jan 7, 2010. Sacramento (CA): Wildlife & Habitat Data Analysis Branch. California Department of Fish and Game.

Endangered species, and it is a candidate for Federal listing. All three species are reported to occur in riparian woodland and scrub habitats throughout Imperial County and they could be impacted by upgrades to the SWWRF.[120] The SA/DIES addendum does not discuss potential impacts to these species, including whether the protocol surveys recommended by the USFWS will be conducted.

v. Burrowing Owl

As noted above, the burrowing owl (*Athene cunicularia*) is listed as a CDFG Species of Special Concern and a Bureau of Land Management Sensitive species. Burrowing owl nesting habitat consists of open areas with burrows.[121] Habitats include dry open rolling hills, grasslands, fallow fields, sparsely vegetated desert scrub with gullies, washes, arroyos, and edges of human disturbed lands.[122] They inhabit golf courses, airports, cemeteries, vacant lots, and road embankments, wherever there is sufficient friable soil for a nesting burrow. The Imperial Valley is regarded as a population stronghold for the burrowing owl, and it currently has one of the largest and most dense populations throughout the species' range.[123] A recent study in the Imperial Valley documented owls nesting primarily along drains (43%), delivery ditches (43%), and canals (11%).[124]

Burrowing owls have the potential to be impacted by upgrades to the SWWRF. The SA/DIES addendum does not provide a discussion of the upgrade project's impacts on burrowing owls, including whether burrows are located on or adjacent to areas that will be affected by proposed upgrades to the SWWRF. If burrows are present, protocol burrowing owl surveys need to be conducted to determine if any burrows are occupied, and whether mitigation will be necessary.

vi. Special-status Plants

Several special-status plant species are known to occur in the vicinity of the SWWRF (Figure 6). However, focused rare plant surveys have not been conducted for the upgrade project. The Draft MND completed for the project concluded the project would be unlikely to impact special-status plant species because (a) no special-status plant species were detected on site during the general reconnaissance surveys; (b) of the developed/disturbed nature of the site; and (c) of the overall lack of suitable habitat and substrate. This is not sufficient rationale to conclude the Project will not impact rare

[120] Dudek. 2009. Draft Mitigated Negative Declaration for the Seeley Wastewater Reclamation Facility Improvements, Imperial County, California. p. 4-22.
[121] Bates C. 2006. Burrowing Owl (*Athene cunicularia*). In The Draft Desert Bird Conservation Plan: a strategy for reversing the decline of desert-associated birds in California. California Partners in Flight. http://www.prbo.org/calpif/htmldocs/desert.html.
[122] *Id.*
[123] DeSante DF, ED Ruhlen, DK Rosenberg. 2004. Density and abundance of burrowing owls in the agricultural matrix of the Imperial Valley, California. Studies in Avian Biology No. 27: 116-119.
[124] Rosenburg, DK and KL Haley. 2004. The ecology of burrowing owls in the agroecosystem of the Imperial Valley, California. Studies in Avian Biology No. 27: 120-135.

plant species. A reconnaissance survey conducted on one day in July (as was done to support the MND) is not the appropriate technique for determining occurrence of rare plants. Additionally, the disturbed nature of the site does not preclude occurrence of rare plants; some rare plant species most frequently occur in disturbed areas.

The SA/DIES addendum does not provide a discussion of the upgrade project's impacts on special-status plants, including whether any mitigation would be provided. Protocol rare plant surveys are required before it can be concluded that the upgrade project will not have a direct or indirect effect on any rare plant species.

vii. Wetlands

The SWWRF site supports wetland resources under the jurisdiction of the CDFG.[125] In addition, the Draft MND concluded the drainage channel would likely be regulated by the Army Corps of Engineers and Regional Water Quality Control Board under the federal Clean Water Act.[126] Similar to conclusions made for the Yuma clapper rail, the Draft MND states eliminating the SWWRF's contribution to regulated waters would not have a substantial adverse effect on the resources because the discontinuation of SWWRF flows is negligible and the channel will continue to receive flows from existing agricultural underdrain discharges and underdrain flow from the drinking water treatment plant.[127] This conclusion is radically different from the previous MND (i.e., 2003), which concluded the SWWRF was the "major water contributor" to the drainage, and that eliminating the discharge would potentially result in the "rapid demise" of the wetland area.[128]

The SA/DEIS addendum omits any discussion of the impacts of upgrading the SWWRF on jurisdictional wetlands, including whether any mitigation would be provided.

viii. Impacts to the Salton Sea

The Salton Sea ecosystem is an extremely valuable resource for resident and migratory birds, including a large number of threatened, endangered, and other special-status species. Until recently, the Salton Sea also supported a robust marine sport fishery. Increasing salinity and declining water quality have eliminated the marine fish species, and, with inflows that will be diminishing in the future, threaten the continued ability of the Salton Sea ecosystem to support birds and other wildlife.[129] Reduced inflows will

[125] Dudek. 2009. Draft Mitigated Negative Declaration for the Seeley Wastewater Reclamation Facility Improvements, Imperial County, California. p. 4-22.
[126] *Id.*
[127] *Id.*
[128] BRG Consulting, Inc. 2003. Final Mitigated Negative Declaration and Environmental Assessment: Proposed Seeley Water / Wastewater Master Plans. p. 31.
[129] California Department of Water Resources and California Department of Fish and Game. 2006. Salton Sea Ecosystem Restoration Program Draft Programmatic Environmental Impact Report. Chapter 1: Introduction. P.1.

also reduce the physical size of the Salton Sea and expose lakebed sediments (playa) that, with the prevailing winds in the area, could exacerbate dust problems for an already degraded air basin.[130]

River mouths, particularly in the southern part of the Salton Sea, provide areas of reduced salinity and higher dissolved oxygen. These estuarine areas are relatively small, yet very productive, and they routinely support higher concentrations of birds than surrounding areas. The size of the estuarine areas is influenced primarily by the amount of inflow. The New and Alamo rivers, which constitute nearly 80 percent of the inflow to the Salton Sea, support the largest estuarine areas.

The proposal to divert water from the outfall to the New River and pipe it to the Project site has the potential to create a cumulatively significant impact on the New River and Salton Sea. The Project-sponsor, SES, highlighted this issue in a letter to the District, "[o]f particular concern are impacts of reduced flows from the SWWRF on the New River and Salton Sea." [131]

The Imperial Irrigation District stated that the loss of water to the New River from the SWWRF would have potential direct impacts on the hydrology of the region and indirect impacts to biology and habitat, including loss or reduction of drain flows and any cumulative drainage impacts that might occur during the development and operation of the facility.[132] The Imperial Irrigation District expressed concern with the impacts that the loss of water would have on the overall water conveyance system, water conservation programs, and Salton Sea restoration efforts.[133]

The impacts on the Salton Sea from diverting water to the project from the SWWRF are cumulative in nature with the project's direct impacts to the Salton Sea watershed. The ephemeral washes on the western edge of the project site drain towards Coyote Wash north of the project site. Washes in the center of the project site drain north towards Coyote Wash, but are estimated to return flow towards the northeastern portion of the project site. The ephemeral washes on the eastern half of the project site drain east across the project site to the Westside Main Canal. The Westside Main Canal and Coyote Wash are tributaries to the New River and eventually to the Salton Sea.[134] The impacts of runoff from the project site on the New River and Salton Sea have not been adequately analyzed in the SA/DEIS. This is discussed in more detail in testimony submitted by Dr. Chris Bowles relating to the Soil and Water Resources section of the SA/DEIS. Impacts from the project on the Salton Sea watershed should be analyzed cumulatively with

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[130] California Department of Water Resources and California Department of Fish and Game. 2006. Salton Sea Ecosystem Restoration Program Draft Programmatic Environmental Impact Report. Chapter 1: Introduction. P.2.
[131] URS Corporation. 2009 Sep 23. Letter from Matt Moore, Project Engineer, to David Dale, Seeley County Water District.
[132] Imperial Irrigation District. 2010 Jan 7. Comment letter on the Seeley County Water District's Wastewater Reclamation Facility Improvements Project.
[133] SA/DEIS, AP.1-23.
[134] SA/DEIS, C.2-11.

impacts on the Salton Sea watershed from the SWWRF. As is indicated in the Appendix to the SA/DEIS, further study is required to comprehensively analyze the potential for more extensive regional effects related to hydrological impacts of the SWWRF upgrades.[135]

IX. Impacts of the Water Pipeline

I have the following comments on impacts to biological resources that may occur as a result of the proposed pipeline between the SWWRF and Project site:

1. Focused special-status species surveys were never conducted within the water pipeline extension study area.[136] Therefore, the SA/DEIS has failed to establish the baseline conditions of the sensitive biological resources that would be affected by pipeline construction.
2. The SA/DEIS concludes there is a high potential for western yellow bats to be present along the water pipeline corridor.[137] However, the SA/DEIS lacks an assessment of the significance of Project impacts to western yellow bats, and no mitigation has been proposed for this species. Similarly, the SA/DEIS concludes suitable roosting habitat for pallid bats occurs along the pipeline corridor,[138] but it fails to provide any information on potential Project impacts or mitigation.
3. Portions of the pipeline will travel through habitat suitable for flat-tailed horned lizards. The Flat-tailed Horned Lizard Rangewide Management Strategy lists the direct and indirect impacts of pipelines as one of the threats to the species.[139] The presence of an existing road does not preclude these impacts. Jones and Lovich (2009) stated "[s]earching on paved and unpaved roads through their habitat can also be an effective way to find them."[140] Mitigation measures are required to avoid, minimize, and offset potentially significant impacts to the flat-tailed horned lizard. These measures are discussed in the Rangewide Management Strategy.

In conclusion, there are potentially significant unmitigated direct and cumulative impacts posed by the upgrade to the SWWRF and the water pipeline that were not analyzed in the SA/DEIS or the Appendix to the SA/DEIS. It is not possible to conclude my testimony on this matter without reviewing the studies that are anticipated in the Appendix and are being conducted by the Applicant and the Seeley County Water District.

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[135] SA/DEIS, AP.1-35,36.
[136] URS. 2009 Jun. Supplement to SES Solar Two Application for Certification. p. 2.6-1.
[137] SA/DEIS, p. C.2-25.
[138] SA/DEIS, p. C.2-18.
[139] Flat-tailed Horned Lizard Interagency Coordinating Committee. 2003. Flat-tailed horned lizard rangewide management strategy, 2003 revision. 80 pp. plus appendices.
[140] Jones LC, RE Lovich, eds. 2009. Lizards of the American Southwest: A Photographic Field Guide. Rio Nuevo Publishers, Tucson (AZ). 567 pp.

X. The SA/DEIS Fails to Provide any Analysis of, or Mitigation for, Project Impacts to Wildlife Movement

CEQA directs lead agencies to examine whether a project would interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors. The SA/DEIS identifies the ephemeral washes in the Project site as wildlife movement corridors.[141] However, it provides no discussion of the significance of eliminating these corridors, or the ability to maintain functional wildlife movement corridors after the fence is erected around the 6,063-acre Project site.

The Flat-tailed Horned Lizard Rangewide Management Strategy identifies the proposed Project site as an area where corridors should be maintained to enable movement between the Yuha Basin and West Mesa Management Areas. I addressed the significance of this in the FTHL portion of my testimony.

Further, the SA/DEIS fails to provide any mitigation for impacts that will result from erecting a fence around the Project site even though this is likely to have a significant impact on the metapopulation dynamics essential to the recovery of peninsular bighorn sheep. Dr. Vern Bleich has provided additional testimony on this topic. In addition to these two species, the Project would undoubtedly serve as a significant barrier to numerous other terrestrial wildlife species. In my opinion, the Project would cause a potentially significant impact on wildlife movement, and would contribute to what undoubtedly would be a cumulatively significant impact (see Figure 2). The SA/DEIS lacks any analyses of these impacts or mitigation to reduce them to a level considered less than significant. As a result, the impacts remain significant and unmitigated.

XI. The SA/DEIS Lacks a Valid Analysis of Avian Collision Hazards

The SA/DEIS provides an un-supported conclusion that "structures at the SES Solar Two site are unlikely to pose a collision risk because they are shorter than those typically associated with bird collision events and do not require guy wires."[142] The conclusion does not accurately reflect the collision hazard posed by the Project. First, "shorter" structures are not immune from collision hazards, as evidenced by the 100 million to 1 billion birds that are killed annually by day-time window collisions at low-level structures in the US alone.[143] Second, rather than building height, light emission appears to be more significant factor in explaining the number of bird collisions.[144]

A study of avian mortality at the Solar One facility near Daggett concluded most (> 75%) birds died from colliding with the mirrored heliostats. The heliostats at the Solar

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[141] SA/DEIS, p. C.2-33.
[142] SA/DEIS, p. C.2-48.
[143] Evans Ogden LJ. 2002. Summary Report on the Bird Friendly Building Program: Effect of Light Reduction on Collision of Migratory Birds. Special Report for the Fatal Light Awareness Program (FLAP). Available at: http://www.flap.org/.
[144] *Id.*

One facility were smaller (and shorter) than the SunCatcher units being proposed for the Imperial Valley Solar Project (22.6 x 22.6 ft versus 38-foot diameter).

The Imperial Valley Solar Project will use the same SunCatcher technology as the Calico Solar Project. For the Calico Solar Project, the SA/DEIS concluded the proposed facility presents a new and relatively un-researched risk for bird collisions and other injuries, and that the Project site would likely pose some collision risk to birds.[145] I agree with that conclusion, as well as the conclusion that measures (i.e., a monitoring study and adaptive management program) would be required to mitigate bird collision impacts.[146]

XII. The SA/DEIS Lacks a Valid Analysis of, and Mitigation for, Noise Impacts on Special-Status Wildlife

The SA/DEIS identifies the burrowing owl, FTHL, desert bighorn sheep, loggerhead shrike, and LeConte's thrasher as the wildlife species most likely to be affected by Project noise.[147] However, there have been very few (or no) studies that have examined how noise affects these, or the other special-status species that occur in the vicinity of the Project site. Therefore, the SA/DEIS's list of species appears to be somewhat arbitrary (especially given the lack of any supporting citations).

Animals rely on hearing to avoid predators, obtain food, and communicate. Noise has the potential to disrupt these activities, and otherwise reduce fitness through injury (e.g., hearing loss), energy loss (from movement away from noise source), reduction in food intake, and habitat avoidance and abandonment.[148] Given this knowledge, all special-status species in the vicinity of the Project site may be adversely affected by Project noise.

A. CONSTRUCTION NOISE

The SA/DEIS states that various noise-reducing features, such as mufflers on internal combustion engines, air inlet silencers, shrouds, or shields would be employed to minimize noise levels, and that these measures have been incorporated into staff's proposed Condition of Certification NOISE-6.[149] The SA/DEIS then states that similar measures have been applied on past projects and have been shown effective in minimizing noise impacts on wildlife.[150] These statements are misleading. Condition of Certification NOISE-6 indicates "[h]aul trucks and other engine-powered equipment shall be equipped with mufflers that meet all applicable regulations."[151] The condition does not require air inlet silencers, shrouds, or shields to minimize noise, and it does not

[145] Calico Solar SA/DEIS, p. C.2-85.
[146] Calico Solar SA/DEIS, p. C.2-85, 86.
[147] SA/DEIS, p. C.2-33.
[148] National Park Service. 1994. Report to Congress: Report on effects of aircraft overflights on the National Park System.
[149] SA/DEIS, p. C.2-53.
[150] SA/DEIS, p. C.2-53.
[151] SA/DEIS, p. C.9-22.

reference the "applicable regulations" that mufflers will meet. Furthermore, it lacks any information (citations or other) on how the referenced measures "have been shown effective in minimizing noise impacts on wildlife." I do not doubt measures have been employed to minimize noise impacts on wildlife; however, I believe scientific study devoted to testing wildlife responses have been minimal. As a result of these issues, the SA/DEIS does not ensure construction noise will be minimized and mitigated to reduce adverse effects on wildlife.

B. OPERATIONS NOISE

The SA/DEIS provides the following assessment of noise impacts associated with Project operation:

> *The primary noise sources associated with operation of the SES Solar Two include the reciprocating Stirling Engines (including generator, cooling fan, and air compressor) utilized on each of the SunCatchers, step-up transformers, and substation. The proposed SES Solar Two power plant would only operate during the daytime hours when sufficient solar insulation is available. As discussed in the Noise and Vibration section, power plant noise levels are predicted to be less than 52 dBA Ldn CNEL (45 dBA Leq) at the nearest sensitive receptor during daytime hours. The measured ambient noise levels are higher than the predicted operational noise levels so there would be very little change from the current ambient noise levels. The impact on operational noise on surrounding wildlife is expected to be less than significant under CEQA.*[152]

This information and conclusion is in stark contrast to that provided in the SA/DEIS for the Calico Solar Project, which will use the same SunCatcher technology:

> *The impact of operational noise on surrounding wildlife is expected to be a constant source of disturbance and would likely preclude use of the adjacent area to some degree. Operation of the SunCatcher units will result in noise levels generally considered to exceed the levels acceptable to most wildlife. As described above for common wildlife, each of the SunCatcher units generates noise levels of 84 dBA Leq at approximately 50 feet. At 850 feet this level remains at 60 dBA. These levels would be expected to limit, and in some cases preclude, the use of habitat adjacent to the project site.*[153]

I believe the significant discrepancy between the two projects' estimated noise impacts regarding identical technology demonstrates that there has been inadequate effort devoted to assessing the impacts of Project noise on wildlife.

A significant problem with the SA/DEIS's analysis is that it used data from the nearest sensitive receptor to evaluate the Project's noise impacts. However, the nearest

[152] SA/DEIS, p. C.2-49.
[153] Calico Solar SA/DEIS, p. C.2-84, 85.

sensitive receptor was located 3,300 feet (0.625 mile) from the Project boundary.[154] Approximately 6,000 acres occur within 3,300 feet of the Project site boundary, and were thus excluded from staff's analysis.

C. PROPOSED MITIGATION

The SA/DEIS concludes that with the implementation of staff's proposed Condition of Certification BIO-16, noise impacts to nesting birds and other wildlife would be less than significant under CEQA.[155] This is not a valid conclusion. Condition of Certification BIO-16 provides mitigation for noise impacts to burrowing owls only, and the mitigation measure would only apply to areas within 500 feet of an active owl burrow.[156] Consequently, the condition does nothing to address the adverse effects Project noise and vibrations will have on any other nesting birds, mammals (e.g., kit fox, bighorn sheep), or FTHL that occur in the Project vicinity.

I am also sponsoring the following exhibits:

Exhibit 473:

A. Letter from Sierra Club San Diego Chapter to David Dale, Seeley County Water District, February 2, 2010.

B. Salton Sea Authority Website Information, Environmental Issues Around the Sea, accessed online at http://www.saltonsea.ca.gov/environ.htm on 2/2/2010.

C. Letter from U.S. Fish and Wildlife Service to Seeley County Water District, February 2, 2010, re: Draft Mitigated Negative Declaration for the Seeley Wastewater Treatment Plant Improvements, Imperial County, California.

D. California Environmental Protection Agency, Regional Water Quality Control Board, Staff Report: Water Quality Issues in the Salton Sea Transboundary Watershed, February 2003.

E. State Water Resources Control Board – Colorado River Basin Region, website, www.waterboards.ca.gov/coloradoriver/water_issues/programs/salton_sea/index.shtml, accessed on 2/2/2010.

F. Letter from Imperial County Public Works Department, January 25, 2010 re: Notice of Intent to adopt a Mitigated Negative Declaration for Seeley County Water District.

[154] SA/DEIS, p. C.9-7.
[155] SA/DEIS, p. C.2-33.
[156] SA/DEIS, p. C.2-92.

G. Letter from Department of Toxic Substances Control to Seeley County Water District, January 25, 2010 re: Notice of Intent to adopt a Proposed Mitigated Negative Declaration for Seeley County Water District Wastewater Reclamation Facility.

Exhibit 474: CNPS Botanical Survey Guidelines, December 9, 1983, Revised June 2, 2001.

Exhibit: 475: Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities, State of California, Natural Resources Agency, Department of Fish and Game, November 24, 2009.

Exhibit 476: Yuma Clapper Rail, Species Profile, US Fish and Wildlife Service.

Exhibit 477: Klem, Preventing Bird-Window Collisions (2000) Wilson Ornithological Society.

Exhibit 478: US Fish and Wildlife Service, Final Environmental Assessment, Proposal to Permit Take as Provided Under the Bald and Golden Eagle Protection Act.

STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the IMPERIAL VALLEY SOLAR PROJECT	Docket No. 08-AFC-5

OPENING TESTIMONY OF DR. VERNON C. BLEICH ON BEHALF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY ON BIOLOGICAL RESOURCES FOR THE IMPERIAL VALLEY SOLAR PROJECT

May 10, 2010

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Introduction

I have reviewed the sections of the Staff Assessment (SA) that address the presence of peninsular bighorn sheep (PBHS) on the property proposed for the development of the project known as Imperial Valley Solar (formerly Solar Two) in western Imperial County. It is my opinion that the SA fails to adequately analyze the potential reasons(s) that PBHS were using that property and, as a result, the SA fails to adequately identify the significant impacts of the project on the local population of PBHS occupying the southeastern portion of the peninsular ranges.

My critique of the SA's analysis of impacts to PBHS centers largely on its failure to address three specific impacts: (I) impacts to sheep movement corridors among areas occupied (or habitat that may be suitable, but otherwise unoccupied) by PBHS; (II) impacts to PBHS through the loss of valuable forage in low-lying areas; and (III) the significance of the permanent loss of 6,063 acres of habitat used at least occasionally by PBHS. Further, a fourth area of concern is the lack of an adequate analysis of cumulative impacts and their overall potential to influence the recovery or persistence of PBHS. Cumulative impacts must be assessed before mitigation adequate to offset those impacts can be proposed.

I. SA Fails to Identify or Mitigate Impacts to Movement Corridors

Without any support, the SA concludes that the site "… does not provide any corridor to other habitat that would support Peninsular bighorn sheep."[1] As a result, the SA does not analyze the likely potential that PBHS observed on the project site were moving from permanently occupied areas to other permanently or seasonally occupied areas. Instead, the SA dismisses the presence of PBHS on the project site as "…a transient occurrence."[2]

In actuality, PBHS occupy a number of areas surrounding the project site including (a) the area known as the Coyote Mountains immediately west of the project site and north of Interstate Highway 8, which supports a population of between 45 and 60 individuals;[3] (b) the Fish Creek Mountains immediately north of the project site that are occupied by PBHS on at least a seasonal basis;[4,5] (c) the Sierra Juarez[6] located immediately south of the

[1] Staff Assessment, SES Solar Two Project, Page ES-21.
[2] Staff Assessment, SES Solar Two Project, Page ES-21.
[3] R. Botta, California Department of Fish and Game, personal communication on 24 March 2010.
[4] R. Botta, California Department of Fish and Game, personal communication on 24 March 2010.

Jacumba Mountains near the project site; (d) the Sierra Cucapa,[7] located immediately southeast of the project site; and (e) a portion of the Jacumba Mountains immediately south of Interstate 8.[8] PBHS are also known to use the Interstate Highway 8 "island" between the northbound (westbound) and southbound (eastbound) lanes of that heavily traveled route.[9] These mountainous areas have been designated as the Carrizo Mountains/Tierra Blanca Mountains/Coyote Mountains Recovery Area[10] (henceforth referred to as the CTCRA) in the Recovery Plan for PBHS in the Peninsular Ranges.[11] The project site may be part of an important movement corridor in this Recovery Area.

The project will be completely surrounded by a perimeter fence, effectively eliminating the potential for PBHS movement through the project site. This will translate to nearly 7 miles of fence immediately adjacent to Interstate Highway 8 along just one side of the project.[12] The SA fails to acknowledge that the fence will eliminate present and future movement of PBHS through the project site and between areas of known habitat. The project's elimination of this movement corridor may impact the recovery of PBHS in the CTCRA. Therefore, it is my opinion that development of the project may result in direct impacts to PBHS and habitat linkage(s) in this recovery area.

The SA's conclusions that "[t]he site is several miles from designated critical habitat and does not provide any corridor to other habitat that would support Peninsular bighorn sheep" is not supported by the literature on this topic.[13] It is well known that bighorn sheep moving between occupied areas, or even from occupied areas into unoccupied areas, are capable of moving long distances, and that such movements may occur more frequently than

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[5] M. Jorgensen, California Department of Parks and Recreation (retired), personal communication on 23 March 2010.
[6] DeForge, J. R., S. D. Ostermann, D. E. Toweill, P. E. Cyrog, and E. M. Barrett. 1993. Helicopter survey of peninsular bighorn sheep in northern Baja California. Desert Bighorn Council Transactions 37:24-28.
[7] DeForge, J. R., S. D. Ostermann, D. E. Toweill, P. E. Cyrog, and E. M. Barrett. 1993. Helicopter survey of peninsular bighorn sheep in northern Baja California. Desert Bighorn Council Transactions 37:24-28.
[8] R. Botta, California Department of Fish and Game, personal communication on 24 March 2010.
[9] R. Botta, California Department of Fish and Game, personal communication on 24 March 2010.
[10] U.S. Fish and Wildlife Service. 2000. Recovery plan for bighorn sheep in the peninsular ranges, California.
[11] Note that the Sierra Juarez and the Sierra Cucapa are not a part of the CTCRA.
[12] Memo from Guy Wagner to Toni Parr dated 17 June 2009, with a subject line of Solar Two Map PBHS Map.ppt.
[13] Staff Assessment, SES Solar Two Project, Page ES-21.

previously recognized.[14,15] Moreover, the statement that, "[m]ovement by bighorn sheep of this distance [6 miles] from *known habitat* to the west of the project site has not been previously documented"[16] implies that such movements are not likely to occur. In fact, movements by bighorn sheep of distances far greater than 6 miles from stereotypical bighorn sheep habitat are being increasingly recognized,[17,18] and the value of intermountain areas like the project site to metapopulation function and, in turn, population persistence, has been repeatedly emphasized in the literature.[19,20,21,22] Further, the PBHS photographed on the project site were female, and female bighorn sheep are inherently conservative in their behavior and are slow to colonize vacant areas,[23] so the presence of female PBHS on the project site suggests those sheep were moving from one area to another within the CTCRA.

The statement that, "…sheep entering the area are far from escape habitat and would be in a highly stressed state which could put them at great risk as the site is already surrounded by busy highways and the railroad"[24] is not consistent with known sheep behavior. Bighorn sheep occupy areas adjacent to busy highways elsewhere, as well as other areas that receive high

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[14] Bleich, V. C., J. D. Wehausen, and S. A. Holl. 1990. Desert-dwelling mountain sheep: conservation implications of a naturally fragmented distribution. Conservation Biology 4:383-390.
[15] Epps, C. W., J. D. Wehausen, V. C. Bleich, S. G. Torres, and J. S. Brashares. 2007. Optimizing dispersal and corridor models using landscape genetics. Journal of Applied Ecology 44:714-724.
[16] Staff Assessment, SES Solar Two Project, Page C.2-24. (*Emphasis added*).
[17] Bleich, V. C., J. D. Wehausen, and S. A. Holl. 1990. Desert-dwelling mountain sheep: conservation implications of a naturally fragmented distribution. Conservation Biology 4:383-390.
[18] Epps, C. W., J. D. Wehausen, V. C. Bleich, S. G. Torres, and J. S. Brashares. 2007. Optimizing dispersal and corridor models using landscape genetics. Journal of Applied Ecology 44:714-724.
[19] Schwartz, O. A., V. C. Bleich, and S. A. Holl. 1986. Genetics and the conservation of mountain sheep *Ovis canadensis nelsoni*. Biological Conservation 37:179-190.
[20] Bleich, V. C., J. D. Wehausen, and S. A. Holl. 1990. Desert-dwelling mountain sheep: conservation implications of a naturally fragmented distribution. Conservation Biology 4:383-390.
[21] Bleich, V. C., J. D. Wehausen, R. R. Ramey II, and J. L. Rechel. 1996. Metapopulation theory and mountain sheep: implications for conservation. Pages 353-373 in D. R. McCullough (editor). Metapopulations and wildlife conservation. Island Press, Covelo, California.
[22] Bleich, V. C. 2005. Politics, promises, and illogical legislation confound wildlife conservation. Wildlife Society Bulletin 33:66-73.
[23] Bleich, V. C., J. D. Wehausen, R. R. Ramey II, and J. L. Rechel. 1996. Metapopulation theory and mountain sheep: implications for conservation. Pages 353-373 in D. R. McCullough (editor). Metapopulations and wildlife conservation. Island Press, Covelo, California.
[24] Staff Assessment, SES Solar Two Project, Page C.2-40.

human use such as state parks, golf courses, areas on and adjacent to mines, and urbanized areas. PBHS are also known to cross Interstate Highway 8 and other heavily traveled routes. Telemetry data indicate that Interstate Highway 8 does not preclude movement of bighorn sheep[25] and the observation of bighorn sheep "[a]pproximately six miles east of the closest Peninsular bighorn sheep critical habitat"[26] is consistent with an expanding population of bighorn sheep in the CTCRA.[27] The photographs of the PBHS on the site demonstrate the animals were alerted to the photographer's presence and then moved away, but the SA provides no evidence to support the conclusion that the sheep were in a "highly stressed state which could put them at great risk."

Moreover, the SA's statement that, "[b]iologists for the BLM and consultants for the applicant have speculated that the bighorn sheep sited [*sic*] at the project location could have been flushed by OHV activity and possibly became disoriented and wandered onto the project site"[28] is based on pure speculation and is contradicted by the evidence regarding known bighorn sheep behavior. When bighorn sheep are harassed, it is my experience (and the experience of virtually every biologist that I have worked with that is familiar with that species) that those ungulates retreat to steep and rugged areas that provide the greatest opportunity to detect and evade threats to their well being; thus, it is unclear why the SA would suggest that the animals observed on the site sought an area "less safe" than the steep, rocky terrain often described as "escape terrain" by bighorn sheep biologists.

The recent observation of PBHS on the project site, as noted in the SA, is encouraging in the context of increased utilization of such areas by bighorn sheep.[29] In fact, the "transient" use of the project site by PBHS, which was dismissed in the SA as insignificant, can be essential to the recovery of the sheep in the region. "Transient" movements by bighorn sheep among populations support metapopulation function, population viability and, ultimately, recovery of that endangered distinct population segment (DPS). Such movements facilitate gene flow and opportunities for colonization of vacant patches of habitat. The potentially significant impacts from eliminating the opportunity for bighorn sheep to use the site on a transient basis must be addressed in the SA.

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[25] R. Botta, California Department of Fish and Game, personal communication on 24 March 2010.
[26] Staff Assessment, SES Solar Two Project, Page C.2-56.
[27] S. G. Torres, California Department of Fish and Game, personal communication on 22 March 2010.
[28] Staff Assessment, SES Solar Two Project, Page C.2-24.
[29] S. G. Torres, California Department of Fish and Game, personal communication on 22 March 2010.

Additionally, because the project is so close to an unfenced part of the United States/Mexico border, it may impact movement corridors between Mexico and the United States. Connectivity among populations of large mammals along the international border is important to the persistence of bighorn sheep and other large mammals in both the United States and Mexico,[30] and habitat connectivity on both sides of the border is important to the conservation or restoration of bighorn sheep.[31] Resource agencies must promote habitat expansion and protect linkage corridors within the CTCRA because new habitat and movement corridors are critical to the recovery of the DPS.

Failure of the SA to address the potential for the project site to function as a movement corridor, compounded by the SA's unsupported conclusion that use of the site by bighorn sheep was "transitory at best"[32] is baseless, and a cause for concern. Minimally, the SA must acknowledge that the site may be important in providing opportunities for PBHS to travel between areas of known occupied bighorn sheep habitat. In the absence of data to the contrary, the SA's unsupported conclusion that any importance of the project area being used for movement between such areas is "highly unlikely"[33] is indefensible.

II. SA Fails to Identify or Mitigate Impacts to Forage Habitat

It is my professional opinion that the PBHS could also have been on the project site for a physiological reason and that reason is most likely the presence of high quality forage. Bighorn sheep presence in an area can almost always be explained by a comparison of the risk of predation relative to the benefits associated with nutrient acquisition. These factors, in combination, have a profound influence on the ways that animals select habitat.[34,35] Unfortunately, the SA fails to analyze the significance of the potential nutritional benefits incurred by PBHS on the project site. Thus, the second major weakness in the SA is the failure to recognize the potential

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[30] Flesch, A. D., C. W. Epps, J. W. Cain III, M. Clark, P. R. Krausman, and J. R. Morgart. 2010. Potential effects of the United States-Mexico border fence on wildlife. Conservation Biology 24:171-181.

[31] Andrew, N. G., V. C. Bleich, and P. V. August. 1999. Habitat selection by mountain sheep in the Sonoran Desert: implications for conservation in the United States and Mexico. California Wildlife Conservation Bulletin 12:1-30.

[32] Staff Assessment, SES Solar Two Project, Page C.2-40.

[33] Staff Assessment, SES Solar Two Project, Page C.2-40.

[34] Pierce, B. M., R. T. Bowyer, and V. C. Bleich. 2004. Habitat selection by mule deer: forage benefits or risk of predation? Journal of Wildlife Management 68:533-541.

[35] Bleich, V. C., R. T. Bowyer, and J. D. Wehausen. 1997. Sexual segregation in mountain sheep: resources or predation? Wildlife Monographs 134:1-50.

importance of lower elevation habitats in terms of the nutritional benefits available to bighorn sheep in such areas. For example, SA states that the project site "… provides marginal foraging habitat"[36] but then fails to provide any basis whatsoever for its conclusion that the project site provides only marginal foraging habitat. This is inexplicable because the project site is in a low-lying area with a number of significant desert washes, a habitat known to provide rich forage for bighorn sheep, particularly during springtime.

In actuality, low lying areas, and in particular desert washes, are among the most productive habitats in the Sonoran Desert and support higher cover of vegetation and far greater plant biomass than surrounding upland areas.[37,38] Although such areas likely are not used on a year-round basis, they are at times critically important to bighorn sheep in terms of nutrient acquisition. Among the animals observed on the project site in late March 2009 was at least one that appeared to be pregnant.[39] That observation is consistent with the peak in the birthing season among bighorn sheep occupying the peninsular ranges (87% of young are born during February, March, and April), and with one of two peaks in diet quality that occur among bighorn sheep in that area during March and July.[40] Thus, the presence of female bighorn sheep on the project site during March is consistent with the utilization of that low-elevation habitat for the purposes of acquiring high-quality forage (i.e., newly emergent or actively growing vegetation, which is highest in moisture content, digestibility, and crude protein)[41] during late gestation, or enhancement of body condition, which can have a profound effect on reproduction the following year.

Forages used by bighorn sheep elsewhere in California similarly reflect an increase in forage quality or diet quality during the spring growing season[42,43,44,45] and have important implications for the reproductive biology

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[36] Staff Assessment, SES Solar Two Project, Page C.2-18.
[37] Andrew, N. G. 1994. Demography and habitat use of desert-dwelling mountain sheep in the East Chocolate Mountains, Imperial County, California. MS Thesis, University of Rhode Island, Kingston, Rhode Island, USA.
[38] Marshal, J. P., P. R. Krausman, and V. C. Bleich. 2005. Dynamics of mule deer forage in the Sonoran Desert. Journal of Arid Environments 60:593-609.
[39] SES Solar Two LLC, Response to CURE Data Requests, Set One, 08-AFC-5.
[40] Rubin, E. S., W. M. Boyce, and V. C. Bleich. 2000. Reproductive strategies of desert bighorn sheep. Journal of Mammalogy 81:769-786.
[41] Marshal, J. P., P. R. Krausman, and V. C. Bleich. 2005. Rainfall, temperature, and forage dynamics affect nutritional quality of desert mule deer forage. Rangeland Ecology and Management 58:360-365.
[42] Bleich, V. C., R. T. Bowyer, D. J. Clark, and T. O. Clark. 1992. Quality of forages eaten by mountain sheep in the eastern Mojave Desert, California. Desert Bighorn Council Transactions 36:41-47.
[43] Oehler, M. W., Sr., R. T. Bowyer, and V. C. Bleich. 2003. Home ranges of mountain sheep: effects of precipitation in a desert ecosystem. Mammalia 67:385-402.

and recruitment rates of bighorn sheep in desert environments.[46] For the SA to denigrate the value of the project site to PBHS by referring to it as "marginal foraging habitat" is wholly without basis. The SA provided no citation to evidence that the forage consumed by the animals on the site was of poor quality, low in availability, or otherwise unimportant to bighorn sheep. Low-lying areas, and particularly washes, are used by bighorn sheep for foraging, and such use may occur only for short periods of time but can play critically important roles in the life history of bighorn sheep, particularly during years when forage production is poor. Indeed, patterns and amounts of precipitation, and resultant productivity of vegetation,[47,48] affect the distribution of bighorn sheep and, ultimately, the probability of persistence of populations of that species.[49] Of the vegetation found on the project site,[50] many species are utilized as forage by bighorn sheep[51,52,53,54] including, but not limited to:

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[44] Oehler, M. W., V. C. Bleich, R. T. Bowyer, and M. C. Nicholson. 2005. Mountain sheep and mining: implications for conservation and management. California Fish and Game 91:149-178.

[45] Wehausen, J. D. 2005. Nutrient predictability, birthing seasons, and lamb recruitment for desert bighorn sheep. Pages 37-50 in J. Goerrissen and J. M. Andre, editors. Sweeney Granite Mountains Desert Research Center 1978-2003. A Quarter Century of Research and Teaching. University of California Natural Reserve System, Riverside, California, USA.

[46] Wehausen, J. D. 2005. Nutrient predictability, birthing seasons, and lamb recruitment for desert bighorn sheep. Pages 37-50 in J. Goerrissen and J. M. Andre (editors). Sweeney Granite Mountains Desert Research Center 1978-2003. A Quarter Century of Research and Teaching. University of California Natural Reserve System, Riverside, California, USA.

[47] Marshal, J. P., P. R. Krausman, and V. C. Bleich. 2005. Rainfall, temperature, and forage dynamics affect nutritional quality of desert mule deer forage. Rangeland Ecology and Management 58:360-365.

[48] Wehausen, J. D. 2005. Nutrient predictability, birthing seasons, and lamb recruitment for desert bighorn sheep. Pages 37-50 in J. Goerrissen and J. M. Andre (editors). Sweeney Granite Mountains Desert Research Center 1978-2003. A Quarter Century of Research and Teaching. University of California Natural Reserve System, Riverside, California, USA.

[49] Oehler, M. W., Sr., R. T. Bowyer, and V. C. Bleich. 2003. Home ranges of mountain sheep: effects of precipitation in a desert ecosystem. Mammalia 67:385-402.

[50] SES Solar Two, Appendix Y. Biological Resources Technical Report, Attachment B. Plant species observed on the Solar Two project site. Pages B-1 – B-4.

[51] Weaver, R. A., J. L. Mensch, and W. V. Fait. 1968. A survey of the California desert bighorn (*Ovis canadensis*) in San Diego County. California Department of Fish and Game, Federal Aid in Wildlife Restoration Project W-51-R-14. Final Report.

[52] Hicks, L. L. 1978. The status and distribution of peninsular bighorn sheep in the In-Ko-Pah Mountains, California. USDI Bureau of Land Management, Riverside District, El Centro, California, USA.

[53] Dodd, N. 1989. Dietary considerations. Pages 109-134 in R. M. Lee (editor). The desert bighorn sheep in Arizona. Arizona Game and Fish Department, Phoenix, Arizona, USA.

[54] Scott, J. E. 1986. Food habits and nutrition of desert bighorn sheep (*Ovis canadensis cremnobates*) in the Santa Rosa Mountains, California. MS Thesis, California State Polytechnic University, Pomona, California, USA.

Aristida spp. (three-awn grass)
Bouteloua spp. (grama grass)
Ephedra nevadensis (Mormon tea)
Prosopis glandulosa (mesquite)
Krameria grayi (white rattany)
Cercidium floridum (palo verde)
Sphaeralcea ambigua (desert mallow)
Encelia farinosa (brittlebush)
Vigueria spp. (vigueria)
Opuntia acanthocarpa (buckhorn cholla)
Larrea tridenta (creosote bush)
Astragalus spp. (milkvetch)
Ditaxis spp. (silverbush)
Hymenoclea salsola (cheeseweed)
Bebbia juncea (sweetbush)
Phoradendron californicum (desert mistletoe).

Indeed, bighorn sheep inhabiting the peninsular ranges are known to forage on more than 50 species of vegetation.[55,56] Thus, the SA's analysis of the project's impacts to bighorn sheep habitat, particularly wash habitat, is inadequate. Further, the SA's analysis of the importance of this habitat to the survival of PBHS occupying nearby stereotypical bighorn sheep habitat is similarly inadequate.

III. SA Fails to Identify and Mitigate Loss of 6,063 Acres of Habitat

Finally, the SA simply dismisses the loss of 6,063 acres of bighorn sheep habitat within the CTCRA. All of the area that will be enclosed by the perimeter fence will preclude access to the project site by PBHS.[57] By inference, an area of more than 6,000 acres that currently is available to bighorn sheep, and appears to support substantial areas of desert wash habitat,[58] will suddenly become unavailable for use by those animals either as foraging habitat or for movement between areas of more stereotypical bighorn sheep habitat. The significant impact of the loss of those 6,063 acres must be analyzed in the context of what is known about bighorn sheep life histories, nutritional needs, and population structure. At a minimum, the SA

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[55] Hicks, L. L. 1978. The status and distribution of peninsular bighorn sheep in the In-Ko-Pah Mountains, California. USDI Bureau of Land Management, Riverside District, El Centro, California, USA.
[56] Scott, J. E. 1986. Food habits and nutrition of desert bighorn sheep (*Ovis canadensis cremnobates*) in the Santa Rosa Mountains, California. MS Thesis, California State Polytechnic University, Pomona, California, USA.
[57] Staff Assessment, SES Solar Two Project, Page C.2-54.
[58] My interpretation of the terrain on the proposed project site as viewed using Google Earth, combined with previous personal observations.

needs to address the impact of this loss of habitat, and propose appropriate mitigation for that loss.

IV. SA Fails to Identify and Mitigate Cumulative Impacts to PBHS

It is my understanding that other alternative energy projects are being, or have been, proposed in the vicinity of the project site. Due to the SA's dismissal of the potential importance of the project site to PBHS, the cumulative impacts of such projects (e.g., Ocotillo Express) in combination with Imperial Valley Solar Project have not been fully assessed. Thus, a discussion of the cumulative impacts of Imperial Valley, in combination with other developments anticipated to occur in the vicinity of the southeastern peninsular ranges, is necessary to more fully assess the overall impact(s) on PBHS. The supplemental cumulative impact analysis for Imperial Valley acknowledges that much of the area north of the project site is within "essential habitat" for PBHS, but provides no further discussion of the potential for cumulative impacts. The reason for this is unknown, but this apparent oversight must be addressed before the potential impacts to PBHS can be fully assessed and appropriate mitigation measure can be proposed.

STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the **IMPERIAL VALLEY SOLAR PROJECT**	Docket No. 08-AFC-5

OPENING TESTIMONY OF DR. CHRIS BOWLES AND CHRIS CAMPBELL ON BEHALF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY ON SOIL AND WATER RESOURCES FOR THE IMPERIAL VALLEY SOLAR PROJECT

May 10, 2010

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1 INTRODUCTION

This testimony provides an analysis of the hydrologic and geomorphic impacts described in the Staff Assessment/Draft Environmental Impact Statement ("SA/DEIS") for the Imperial Valley Solar Project, formerly SES Solar Two ("Project"). Our analysis also examined the associated documents as listed below, and includes a detailed critique of the technical analyses that have been undertaken to date. We also describe additional analyses that are needed to address the impacts associated with the proposed application and to formulate potential mitigation measures to reduce impacts to less than significant and identify the least environmentally damaging alternative.

2 REFERENCE MATERIAL

We reviewed the following information to inform our assessment of the SA/DEIS:

Angel, J.R., M.A. Palecki, & S.T. Hollinger. 2005. Storm precipitation in the United States. Part II: soil erosion characteristics. *Journal of Applied Meteorology* 44:947-959.

BLM & CEC. 2010. Staff Assessment and Draft Environmental Impact Statement and Draft California Desert Conservation Area Plan Amendment, SES Solar Two Project.

BLM & USGS. 2001. Biological Soil Crusts: Ecology of Management. Technical Reference 1730-2.

Chang, H. 2009a. Technical Review of Drainage Report for Solar Two Site. Prepared for LSA Associates, Inc. July 2009.

Chang, H. 2009b. Technical Review for Hydrologic Assessment Report SES Solar Two Project Site. Prepared for LSA Associates, Inc. October 2009.

Chang, H. 2010. Sediment Study for Three Washes at Solar Two Project Site in Imperial County, California. Prepared for LSA Associates, Inc. January 2010.

Chen, Li, J. Yin, J. Miller, & M. Young. 2009. The role of the clast layer of desert pavement in rainfall-runoff processes. In World Environmental and Water Resources Congress 2009.

DWR & DFG. 2006. Salton Sea Ecosystem Restoration Program Draft Programmatic Environmental Impact Report. Prepared for State of California The Resources Agency. October 2006.

Gonzalez-Bonorino, G. & W.R. Osterkamp. 2004. Applying RUSLE 2.0 on burned-forest lands: An appraisal. *Journal of Soil and Water Conservation* 59(1):36-42.

Griffiths, P.G, R. Hereford, & R.H. Webb. 2006. Sediment yield and runoff frequency of small drainage basins in the Mojave Desert, U.S.A. *Geomorphology* 74:232-244.

Miller, J.J., T.G. Caldwell, M.H. Young, & G.K. Dalldorf. 2008. Verifying curve numbers in arid environments by combining detailed geomorphic mapping and pedotransfer functions. In World Environmental and Water Resources Congress 2008.

Pelletier, J.D., M. Cline, & S.B. DeLong. 2007. Desert pavement dynamics: numerical modeling and field-based calibration. *Earth Surface Processes and Landforms* 32:1913-1927.

RMT. 2009a. Hydrologic Assessment Report SES Solar Two Project Site. Prepared for Stirling Energy Systems, Inc. September 2009.

RMT. 2009b. Hydrologic Assessment Report SES Solar Two Project Site, Revision 1. Prepared for Stirling Energy Systems, Inc. October 2009.

SES. 2008. Application for Certification for the Stirling Energy Systems (SES) Solar Two Project, Volumes 1 and 2.

SES. 2009a. In Response to CEC & BLM Data Requests 31 and 32, DESCP/SWPP – Volume 1.

SES. 2009b. In Response to CEC & BLM Data Requests 31 and 32, DESCP/SWPP – Volume 2.

Stantec. 2008a. Initial Drainage Report Solar Two Site. Prepared for Stirling Energy Systems, Inc. May 2008.

Stantec. 2008b. Drainage Report Solar Two Site. Prepared for Stirling Energy Systems, Inc. August 2008.

USGS. 1994. Methods for Estimating Magnitude and Frequency of Floods in the Southwestern United States. USGS Water-Supply Paper 2433.

Wood, Y.A., R.C. Graham, & S.G. Wells. 2005. Surface control of desert pavement pedologic process and landscape function, Cima Volcanic field, Mojave Desert, California. Catena 59:205-230.

Young, M. & L. Chen. 2009. Soil Heterogeneity and Moisture Distribution Due to Rainfall Events in Vegetated Desert Areas: Potential Impact on Soil Recharge and Ecosystems, Annual Report 2009.

3 SUMMARY

With the information reviewed to date (see Section 2), we have determined that the proposed project would result in significant impacts, both onsite and offsite, in terms of changes in hydrologic processes, increases in soil erosion by water, adverse changes to the morphology of the washes, and potential hazards to the solar dishes placed in the washes. Impacts were determined to be significant namely because the technical analyses that were used in the SA/DEIS to determine the levels of significance were 1) deemed to be insufficient for makings such determinations, 2) did not account for key components of the landscape (i.e., desert pavement, cryptobiotic crust) as they influence soil and water processes, 3) did not thoroughly address offsite impacts (i.e., Westside Main Canal, New River, Salton Sea), and 4) did not address the long-term impacts of the project under a changing climate. A review of the technical analyses supporting the SA/DEIS (and subsequent or continuing analyses) is provided in Section 4 and was used as a basis for formulating our independent assessment on the significance of project impacts relative to hydrology and geomorphology.

The SA/DEIS assessed the significance of project impacts per Appendix G of the CEQA Guidelines and Energy Commission performance standards and thresholds per the following (abbreviated) considerations:

1. Does the project violate water quality standards (see VIII.a)?
2. Does the project substantially deplete and/or interfere with groundwater supplies and/or recharge (see VIII.b)?
3. Does the project substantially alter drainage patterns onsite or offsite, directly or indirectly, that would result in a) changes in sedimentation (VIII.c) and/or b) increases in runoff and/or flooding (VIII.d)?
4. Does the project create or contribute runoff that would exceed existing or planned stormwater drainage facilities or provide additional sources of polluted runoff (VIII.e)?
5. Does the project substantially degrade surface water or groundwater quality (VIII.f)?

6. Does the project place structures in the flood hazard areas that would a) impede or redirect flows (VIII.h) and/or b) pose significant risk of loss (VIII.i)?

to which we added the following consideration:

7. Does the project result in substantial soil erosion (VI.b)?

We reviewed Chapter C.7 of the SA/DEIS with respect to the above considerations and provide a summary of our findings in Table 1 below.

Table 1. CEQA levels of significance

Bullet	SA/ DEIS Level	cbec Level	cbec Level of Significance Rational
1	2[1]	1	The Conditions of Certification referenced in the SA/DEIS assume that the analyses performed to date are sufficient to "ensure no violation of water quality standards." Absent adequate soil erosion analyses, the potential delivery and conveyance of eroded soils and soluble salts by runoff pose a significant offsite impact.
2	4	N/A	The project does not currently have an assured water supply. The Seeley offsite facilities have not been upgraded or permitted to supply the water and a CEQA analysis is underway to evaluate the impacts of this upgrade. Further, the SA/DEIS conclusion that the Project will not impact groundwater is based upon incorrect data, since the project will impact groundwater resources.
3	1	1	We agree with the SA/DEIS determination that impacts to wash morphology are significant and adverse, but for reasons in addition to grading and vegetation removal. Subsequent 1D sediment transport analyses (see Section 4.4.2), though deficient on some levels, adequately portray the impact of the proposed sediment basins as resulting in erosive conditions onsite and offsite due to sediment trapping and subsequent sediment starvation, which will ultimately lead to degradation of the washes downstream of the basins. To further comment on the subsequent sediment transport analyses, as a means to inform future analyses, the sediment transport modeling 1) oversimplifies the alluvial wash/fan system in 1D when a 2D model would be more appropriate, 2) oversimplifies the model input assumptions (e.g., non-flashy

			hydrograph), and 3) does not adequately consider the sedimentation impacts of the solar dish towers in aggregate when placed in the washes as physical flow impediments (i.e., rather they are treated as part of the composite hydraulic roughness). We disagree with the SA/DEIS assessment that the referenced Conditions of Certification "would ensure no adverse alteration of drainage patterns related to flooding and would reduce impacts related to sedimentation." Drainage patterns will be impacted because 1) the analysis of the hydrology of existing conditions on the site is inadequate,[1] 2) the analysis of project conditions hydrology is absent and void from dependent analyses (i.e., hydraulics and sediment transport), 3) sedimentation analyses addressing soil erosion are grossly inadequate,[2] and 4) offsite impacts pertaining to runoff and sedimentation are not addressed. As such, onsite and offsite impacts to stream morphology, flooding, and sedimentation are considered significant and the mitigation proposed in the SA/DEIS does not mitigate these impacts to a level that is less than significant.
4	2*	1	It is our understanding that the Main Services Complex, Substation, and other adjacent paved surfaces will be routed to a planned onsite flood retention facility. As stated in the SA/DEIS, the referenced Conditions of Certification "would ensure that the project would not create or contribute runoff water that exceeds existing or planned" stormwater drainage facilities. We are reasonably assured that the retention facility will be designed to appropriate Imperial County stormwater standards per traditional methods. However, the SA/DEIS failed to analyze or mitigate the resulting

[1] In summary of Table 1, as supported by Section 4, it has been demonstrated that the hydrologic (see Section 4.2), soil erosion (see Section 4.3.1), and hydraulic, sediment transport, and scour (see Section 4.4) modeling and calculations are generally inadequate for the following reasons:

1. The hydrology is inaccurate and does not address project conditions through changes in effective percent impervious cover (PIC);
2. The soil loss calculations are grossly assumptive and arbitrary since they do not consider the influence of the desert pavement and cryptobiotic crust and do not justify the effectiveness of the proposed BMPs;
3. Offsite impacts are not addressed;
4. Long-term project impacts due to climate change are not addressed.

[2] See footnote [1]

			hydromodification impacts of project construction and operation. Hydromodification relates to the impacts on receiving waters due to changes in hydrologic characteristics (i.e., runoff duration, frequency, volume) as a result of the increases in effective impervious cover (PIC). Effective PIC may increase under project conditions, in aggregate, as a combination of site infrastructure (i.e., paved roads, building pads, solar disc footings), access road compaction, destruction of desert pavement and cryptobiotic crust, and application of soil binders. As such, the potential impacts of the retention facility on the environment are considered significant.
5	2*	1	The Conditions of Certification referenced in the SA/DEIS assume that the analyses performed to date are sufficient to "ensure no degradation of surface water or groundwater quality." This is contrary to Conclusion #5 in the SA/DEIS, which acknowledges the uncertainty regarding the sediment content of the runoff water, and concludes that there is a potentially significant water quality impact due to sedimentation. We concur that there is a potentially significant water quality impact considering offsite impacts have not been sufficiently analyzed to address the sedimentation TMDLs (DWR & DFG, 2006) that have been developed for the New River and Imperial Valley drains. We reiterate this potentially significant impact as it pertains to Bullet 3 above and Bullet 8 below. Furthermore, it is unclear how the project intends to deal with soluble salts exposed during grading that can either leach into the groundwater and/or be transported offsite with runoff. As offsite impacts have not been sufficiently analyzed to address the salt TMDL (DWR & DFG, 2006) that is being developed for the Salton Sea, the water quality impact posed by the project is potentially significant.
6	2*	1	The Conditions of Certification referenced in the SA/DEIS assume that the analyses performed to date are sufficient to "ensure that structures within the floodplain are protected and that redirected flows are designed such that they not cause adverse impacts." However, the local scour calculations to support this determination are based on 1D steady-state hydraulics (see Section 4.4.1) informed by inadequate[3] hydrology (see Section 4.2). Preferential flow and scour within the alluvial wash/fan have been cross section

[3] See footnote [1]

			averaged in the 1D model, thereby masking locations that may experience higher velocities and bed shear stresses, resulting in deeper scour depths that may coincide with the placement of some solar dishes. In addition, the hydrology used in the hydraulic model underestimates flows in smaller watersheds and is run in steady-state conditions, thereby underestimating the peak velocities and bed shear stresses associated with flashy runoff. Furthermore, even though the subsequent 1D sediment transport modeling (see Section 4.4.2) corroborates the scour calculations in the SA/DEIS, it too is subject to similar simplifications in model assumptions and inputs. As such, impacts to the structural integrity of the solar dishes placed in the active washes are considered significant and unmitigated. To mitigate these impacts, it is preferable to not install solar dishes in any active washes (per Drainage Alternative #1 or similar).
7	N/A	1	Absent adequate analyses, the impacts to soil erosion, and subsequent sedimentation in the washes, are significant. The grossly assumptive and arbitrary soil erosion (see Section 4.3.1) calculations 1) do not consider the influence of the desert pavement and cryptobiotic crust under existing conditions, 2) do not justify the effectiveness of the proposed BMPs, 3) oversimplify the application of RUSLE2 to an idealized and overly long hillslope when impacts occur over much shorter lengths with direct delivery to the highly dendritic washes (i.e., higher probability of eroded soil being delivered to the washes and conveyed downstream), and 4) do not consider offsite impacts of runoff laden with soil (e.g., washload) and soluble salts being conveyed to adjacent lands, the Westside Main Canal (e.g., short term impacts on irrigated agriculture), the New River (e.g., sediments), and ultimately the Salton Sea (e.g., salts). In addition, the gullying effects of storm runoff generated by intense rainfall concentrating beneath the bottom lip of the solar dishes or intercepted by access road cuts is not addressed. As such, impacts by soil erosion from the solar array fields are significant.

Notes: [*] the level of significance is assumed as it was not actually stated.

Levels of significance: [1] potentially significant impact or significant and unmitigated, [2] less than significant impact with mitigation, [3] less than significant impact, and [4] no impact.

4 DETAILED COMMENTS ON THE SA/DEIS TECHINICAL ANALYSES

4.1 ENVIRONMENTAL SETTING

Our comments on the environmental setting component of the SA/DEIS pertain to the influence of desert pavement and crypto biotic crust on hydrologic and sedimentation processes, which are not acknowledged in the SA/DEIS, and as such, not represented in the technical analyses performed to date.

4.1.1 DESERT PAVEMENT

It is our opinion that the physical properties of the desert pavement at the site have not been adequately characterized. The extent (and type) of desert pavement and distinct geomorphic surfaces across the site should be mapped since they control infiltration, runoff, and transmission losses under existing conditions (Wood et al., 2005; Miller et al., 2008; Young & Chen, 2009). It is important to fully understand the existing conditions in order to be able to identify the potential impacts. Resilience (and self healing) of the desert pavement to minor anthropogenic disturbance is possible over centuries if the mature Av horizon (clay-rich eolian epipedon) remains intact (Pelletier et al., 2007). However, in the context of project construction and subsequent maintenance activities (i.e., servicing the Power Conversion Unit, monthly mirror washing, etc.), this is unlikely to occur. Deep grading, a potential symptom of the proposed project, will likely destroy the Av horizon and directly influence infiltration, runoff, transmission losses, and movement of soluble salts (perhaps downward into the groundwater in the long-term and laterally in the short term with soil erosion and surface runoff). This could also have an indirect impact on neighboring pavement types and established vegetation since vegetation is linked to pavement type, clast cover, and influenced by proximity to leached soluble salts (Wood et al., 2005).

4.1.2 CRYPTOBIOTIC CRUST

Although a detailed surface soils assessment, including identification of the presence of a cryptobiotic crust, was not undertaken, it is highly likely that cryptobiotic crust is

widespread across the site. The impacts to the cryptobiotic crust were therefore not analyzed, nor were mitigation techniques provided.

The cryptobiotic crust[4] is a highly specialized community of cyanobacteria, mosses, and lichen and are prevalent in the project area. The living organisms present in the desert soils create a surface crust of soil particles bound together by organic material. The thickness of these crusts can reach up to 10 cm. The crusts are important members of the desert ecosystem and contribute to the well-being of other plants by stabilizing sand and dirt, promoting moisture retention, and fixing atmospheric nitrogen. Because of their thin, fiberous nature, cryptobiotic soils are extremely fragile systems. Some species in the soil can recover within a few years of disturbance, but slow growing species may require more than a century to recover.

Disruption of the crust will result in decreased organism diversity, soil nutrients, stability, and organic matter. The crusts significantly aid infiltration of precipitation and anthropogenic disturbance can dramatically increase surface runoff and increase the rate of soil loss by an order of magnitude. Wind erosion is substantially more prevalent with disruption of the crust. Crusts that may remain intact downstream of the project site will inevitably be buried through wind blown and water transported erosion.

4.2 HYDROLOGY

A variety of different hydrologic modeling and estimation methodologies have been utilized in the development of the SA/DEIS with a wide variety of results. However, we consider that the latest and current modeling method utilized in the SA/DEIS is inappropriate, discussed as follows.

4.2.1 CHRONOLOGY OF HYDROLOGIC ESTIMATION TECHNIQUES UTILIZED

Various hydrologic investigations have been conducted for the project, with the latest modeling method utilized in the SA/DEIS. What follows here is a summary of those investigations, including a critique, followed by recommendations:

1. Stantec (2008a) first used USGS regional regression (USGS, 1994) to estimate peak flows for Q10 (10-year recurrence interval flow), Q25, and Q100 (which had a typical record length of 21 years). This is a standard hydrologic technique for ungaged watersheds.
2. Stantec (2008b) then developed their own regional analysis of fifteen (15) local USGS gage records (typical record length of 14 years) to estimate peak flows for Q10, Q25, and Q100. These peak flows were then used to calibrate a hydrologic

[4] For example, see http://www.soilcrust.org/cmst.pdf.

(HEC-HMS) model using areal adjusted NOAA Atlas14 point rainfall for the 10-, 25-, and 100-year 6-hour storms at Coyote Wells (just east of the project site), NOAA rainfall distribution, initial and constant losses to estimate excess rainfall, and the Clark unit hydrograph to transform the excess rainfall. These flow estimates were nearly half of those estimated by Stantec (2008a) using USGS regional regression.

3. Chang (2009a) reviewed the Stantec (2008b) hydrology. While Chang was correct to point out the improper application of the areal reduction factors, he may have inadvertently compared the NOAA Altas2 point rainfall (outdated) to the NOAA Atlas14 point rainfall used by Stantec, and he incorrectly assumed Stantec used the CN method when in actuality they used the initial and constant loss method to estimate excess rainfall in calibration of the HEC-HMS model. Chang ultimately concluded that the Stantec (2008b) peak flows were underestimated.
4. RMT (2009a, 2009b) were contracted to continue the hydrologic analysis. As part of that, Chang (2009b; pers. comm.) reviewed the RMT (2009a) draft hydrology study and suggested that RMT include the 6-hour rainfall in addition to 24-hour rainfall (since Chang noted that the RMT 100-year 24-hour peak flows for smaller watersheds were significantly lower than the Stantec (2008b) peak flows which he thought were underestimated) and consider other rainfall distributions to include that used for San Diego County.
5. To provide an alternative to the Stantec (2009b) HEC-HMS model, RMT (2009b) developed a HydroCAD model (based on TR-20 methods) using NOAA Atlas14 point rainfall for the 10-, 25-, and 100-year 6-hour storms, the San Diego rainfall distribution, the Curve Number (CN) method (land use=poor desert shrub, soils=C, AMC=2, CN=85) to estimate excess rainfall, and the NRCS unit hydrograph to transform the excess rainfall. The RMT (2009b) hydrology is what is currently utilized in the SA/DEIS.

Based on this initial review, we conducted a comparison to better illustrate the differences between the different phases of the hydrologic analyses. Figure 1 shows a comparison of the Stantec (2008a; 2008b) and RMT (2009a; 2009b) discharge estimates relative to each other and the USGS (1994) estimates and scatter data. This figure demonstrates:

1. The Stantec (2008b) HEC-HMS model appears to be calibrated on a watershed by watershed basis, despite over applying areal adjustment factors, in order for the HEC-HMS peak flows to fall directly on local regional curve they developed.
2. The RMT (2009a; 24-hour Type 1) and RMT (2009b; San Diego 6-hour) storms produce nearly the same results.
3. The RMT (2009b) peak flows are significantly smaller than the Stantec (2008b) peak flows for smaller watersheds (> 100 cfs difference) and the opposite is true of larger watersheds (> 1000 cfs difference).
4. Provided that the local gage analysis by Stantec (2008b) is an improvement on the USGS (1994) regional analysis and gaged watershed characteristics are comparable to the project site, then the Stantec (2008b) study would appear to be a more valid

approach than the RMT (2009b) study and should be used for the impact analysis. At present, the RMT (2009b) is used in the SA/DEIS to inform hydraulic and scour analyses and used by Chang (2010) to inform sediment transport analyses, the implications of which are described further below.

4.2.2 RAINFALL DISTRIBUTION

Regarding the rainfall distributions used in the above studies, Figure 2 shows a comparison the NOAA Atlas14 convective (C) and general (G) 100-year 6-hour storms compared to the San Diego 6-hour storm. Stantec (2008b) used one of the NOAA storms (it is not clear from their report which one was used) to calibrate the HEC-HMS model and RMT (2009b) used the San Diego 6-hour storm for the HydroCAD model. The San Diego 6-hour storm is more typical of a balanced hyetograph (in this case slightly off center) with an intense peak (50% of the rainfall occurs in the 3rd hour).

4.2.3 RAINFALL EXCESS

With respect to the RMT (2009b) modeling, the selected CN 1) was somewhat arbitrary, 2) it was assumed to be the same for existing and project conditions (i.e., no hydrologic difference pre- and post-project), 3) it did not take into account distinct geomorphic surfaces (e.g., CN values vary depending if the geomorphic surfaces are young or old alluvium; Miller et al., 2008), and 4) it did not take into account the degradation of the desert pavement.

Both Stantec (2008b) and RMT (2009b) only estimated hydrology for existing conditions. Project conditions hydrology is likely not the same given unknowns associated depth of grading (and disturbance of the Av horizon), access road compaction and surface runoff interception, and application of soil binders, all of which influence effective percent impervious cover (PIC), rainfall excess, and model assumptions.

4.2.4 ADDITIONAL SURVEYS, DATA COLLECTION AND ANALYSIS REQUIRED

In response to the summary and critique given in the previous sections, we have concluded that the current level and type of analysis in the SA/DEIS is insufficient. Failure to undertake additional surveys, data collection and analysis, and design of appropriate mitigation actions as described below will result in significant unmitigated impacts to the desert pavement and cryptobiotic soils, with corresponding dramatic increases in sediment and wind erosion, and significant unmitigated impacts to downstream receiving waters:

1. Perform study to determine watersheds used in the local regional analysis by Stantec (2008b) are representative of the project site.

2. Revise the HEC-HMS calibration by Stantec (2008b) to include use of the CN method (since this is also used in the soil loss analysis) and document calibration parameters in a table. The Stantec (2008b) approach (i.e., calibrating to local regional regression) is preferred over the RMT (2009b) study since it is a refinement to the USGS regional regression approach. The current analysis under-predicts the peak flows likely to occur. Under prediction of hydrology results in under prediction of potentially significant impacts.
3. In developing the rainfall loss method (i.e., CN method), correlate loss parameters to distinct geomorphic surfaces using published data (e.g., Miller et al., 2008) or data acquired through project specific experiments (see recommendations in Section 4). The current analysis likely under-predicts the CN, which in turn under-predicts runoff and potential impacts.
4. Use an appropriate temporal rainfall distribution characteristic of the convective storms at the project site. An analysis of local rainfall data will be needed to confirm the selection of an appropriate temporal distribution (e.g., NOAA Atlas14 50th percentile of 2nd Quartile) as this informs the shape and timing of the flood hydrograph.
5. Generate hydrology for existing and project conditions. Project conditions hydrology will require a better understanding of project impacts on the effective percentage of impervious cover through destruction of the desert pavement structure and compaction of access roads as a result of project impacts.
6. The SA/DEIS failed to analyze or mitigate the resulting hydromodification impacts of project construction and operation. Hydromodification relates to the impacts on receiving waters due to changes in hydrologic characteristics (i.e., runoff duration, frequency, volume) as a result of increase in PIC. Effective PIC may increase under project conditions, in aggregate, as a combination of site infrastructure (i.e., paved roads, building pads, solar disc footings), access road compaction, destruction of desert pavement and cryptobiotic crust, and application of soil binders. These changes in PIC were not analyzed.
7. Neither Stantec (2008b) nor RMT (2009b) considered climate change and its role in shaping the project's impacts on the environment in terms of hydrologic response and soil erosion. Provided that intense summer storms are responsible for a majority of the runoff, The Nature Conservancy (TNC) Climate Wizard (http://www.climatewizard.org/) would suggest that summer rainfall in southeastern California may increase by as much as 50% by 2080 in the summer, which could be accompanied by significant increases in rainfall intensity and erosivity (Angel et al., 2005). This significant increase in rainfall could have a profound impact on the landscape, especially in the washes where solar dishes are proposed with increases in runoff and sediment and an adapting landscape. This significant impact must be analyzed and mitigated.

4.3 SOIL EROSION AND SEDIMENT YIELD

Limited soil erosion and sediment yield investigations have been performed for the project and incorporated into the SA/DEIS. What follows here is a summary of those investigations, including a critique of the technical analyses followed by requirements for modification to the existing analyses or additional analyses.

4.3.1 SOIL EROSION

The SA/DEIS relied on RUSLE2 modeling to predict soil erosion on the project site. Based on its agricultural roots, RUSLE2 has been adapted over the years to the Pacific Northwest (PNW), the Northwest Wheat and Winter Range (NWWR), and other areas of the western US with extensive development of various region and county specific databases (i.e., climate, soils, crop management, etc.) and newer and extended relationships and equations. However, its broadened application does come with exception (e.g., Gonzalez-Bonorino & Osterkamp, 2004) and its application to the desert might be one of those exceptions given the existing landscape character (i.e., desert pavement shields underlying erodible soils, formation of crypto biotic crust).

It would appear that application of RUSLE2 to estimate surface erosion before, during, and after project construction (for the project site only) was grossly oversimplified to demonstrate the benefit of proposed BMPs to control soil erosion:

1. The analysis of existing conditions does not account for the hiding function afforded by the desert pavement (i.e., the desert pavement clasts shields the highly erodible Av horizon). Depending on the type and extent of desert pavement, it is possible to treat the clasts as surface cover (e.g., rocks), which would significantly reduce soil erosion estimates under existing conditions and amplify project impacts relative to a more accurate representation of existing conditions.
2. Slope lengths were an order of magnitude too long (max value of 1000 feet was used), they should be much shorter (e.g., 100 feet), and they should be directly tributary to the fine network of dendritic channels, which could equate to greater delivery to the fluvial system. This assumption is not an accurate reflection of project site slope lengths.
3. Project conditions without BMPs simply assumed bladed cut (and fill) with no subsequent access road compaction. This assumption fails to recognize that access road compaction will increase surface runoff through reductions in infiltration rates.
4. Effectiveness of the BMPs (i.e., soil binders, linear sediment barriers) for post construction and operations conditions was arbitrarily assigned a surface residue cover of 45% to achieve a post project soil erosion rate less than that estimated for existing conditions. This assumption is arbitrary, has no physical basis, and is simply used as a means to demonstrate in the SA/DEIS that the project BMPs are

effective at controlling soil erosion. For example, if the assumptions in Bullets 1 through 3 were correct, a surface residue cover of 60% may have been selected to demonstrate effectiveness of the project BMPs.

5. Application of RUSLE2 to the project scale was not performed and should be exercised with caution. It should be verified using project scale soil erosion calculation in a GIS-based application of RUSLE, USPED, or similar[5] to account for the complex interaction between the landscape and the project elements to better predict project impacts on soil erosion and sediment delivery.

While not part of the Desert Research Institute (DRI) rainfall/runoff plot studies on desert pavement (Young & Chen, 2009; Chen et al., 2009), Chen (pers. comm.) provided anecdotal evidence that soil erosion was observed onsite and appeared to be significant in their rainfall/runoff plot experiments when the desert pavement clasts were removed, exposing the underlying Av horizon, when applying a 100-year 1-hour rainfall rate (2.67 in/hr) for one hour. This observation further stresses the importance of understanding geomorphic (and biologic) surfaces and their role in controlling hydrologic and geomorphic processes.

4.3.2 SEDIMENT YIELD

While the Mohave Desert sedimentation study (Griffiths et al., 2006) appears to be appropriate in its application to estimate sediment yield under existing conditions at the project site given similarities in rainfall patterns (i.e., intense convective summer storms) and geomorphic surfaces (i.e., desert pavement, alluvial fans, etc.), the application of the sedimentation study to size sediment basins in the SA/DEIS (see Appendix D of the DESCP/SWPP (SES, 2009a)) was not appropriate because the sediment yield includes washload, it does not account for the bed material trapping efficiency of the basins nor the maintenance schedule of the basins, which could be accounted for more appropriately using a 1D sediment transport model (see Section 4.4.2). The sedimentation study should be taken a step further and used to calibrate or parameterize RUSLE2 to desert applications.

4.3.2.1 SOLAR DISHES

In intense storms, the dishes could concentrate runoff below the bottom lip of the dish and initiate gully erosion. This fact is not considered in the SA/DEIS.

4.3.2.2 ACCESS ROAD CUT/FILL

Road cuts, subsequent compaction, application of soil binders, and interception of upslope surface runoff could initiate gully erosion. Road fill could bury runoff-generating areas to

[5] See http://skagit.meas.ncsu.edu/~helena/gmslab/reports/CerlErosionTutorial/denix/denixstart.html.

which downslope vegetated areas are dependent upon. These facts are not considered in the SA/DEIS.

4.3.3 ADDITIONAL SURVEYS, DATA COLLECTION AND ANALYSIS REQUIRED

In response to the summary and critique given in the previous sections, we have concluded that the current level and type of analysis in the SA/DEIS is insufficient. Failure to undertake additional surveys, data collection and analysis, and design of appropriate mitigation actions as described below will result in significant unmitigated impacts to the desert pavement and cryptobiotic soils, with corresponding dramatic increases in sediment and wind erosion, and significant impacts to downstream receiving waters:

1. Perform rainfall/runoff/sediment yield plot studies on different geomorphic surfaces (perhaps at multiple proposed solar sites) under existing and project (with and without BMPs) conditions and parameterize RUSLE2 as mentioned above.
2. Justify and/or quantify desert pavement, cryptobiotic crust, and BMP effectiveness (especially the soil binders given their proposed broad application) on stabilizing soils and runoff generation, using empirical data if available, site testing, or sensitivity modeling.
3. Revise the soil loss calculations, using a GIS-based approach (several examples exist in the literature), and use the information (from the above recommendations) as input into the sediment transport model.
4. Confirm that solar dish runoff under intense runoff will not concentrate below the bottom lip of the solar dish and initiate gully erosion.
5. Confirm that the access road cuts will not intercept and concentrate runoff, inducing gully erosion, especially if they coincide with backfilled trenches.

4.4 HYDRAULICS, SEDIMENT TRANSPORT, AND SCOUR

A review of the hydraulic, sediment transport and scour analysis provided in the SA/DEIS and associated documents has been conducted. What follows here is a summary of those investigations, including a critique of the technical analyses, followed by required modifications to the existing analyses or additional analyses.

4.4.1 HYDRAULICS

The following is an overview of the 1D hydraulic modeling used to inform the SA/DEIS:

1. Hydraulic modeling in HEC-RAS was limited to the project site between Interstate 8 and the railroad. Hydraulic modeling does not extend north of the railroad nor east of Dunaway Road toward the Westside Main Canal, and was limited to steady-state

conditions (to conservatively estimate floodplain widths for the washes). As such, the steady-state hydraulic modeling does not account for the dynamic nature of flooding, the runoff volume associated with flash flooding, and the duration and extent of inundation that might occur offsite.

2. Hydraulic modeling relied on the hydrology generated by RMT (2009b) to delineate the onsite floodplains. As noted previously, the RMT (2009b) flows are significantly different (smaller for smaller watersheds) from the Stantec (2008b) flows. If the flows are significantly smaller in the washes, then floodplain mapping widths and potential solar dish exclusion under Drainage Alternative #1 could be under estimated (i.e., narrower floodplain widths potentially permit more solar dishes along the fringes of the active washes), especially if geomorphic observations suggest otherwise (i.e., wider flood prone widths).
3. RMT (2009b) recommended channelizing the flows on the alluvial fans. It is our assessment this would result in degradation of the alluvial fan surfaces. It is our understanding this recommendation was not carried into the SA/DEIS.

4.4.2 GENERAL SCOUR

The following is an overview and critique of the 1D sediment transport modeling that was performed as a subsequent analysis after the release of the SA/DEIS:

1. To overcome deficiencies in the SA/DEIS, Chang (2010) used the 1D sediment transport model FLUVIAL-12 to simulate general scour in select washes for existing and project conditions. Project condition scenarios included 1) solar dishes in the washes with access roads (to include cutoff walls) and 2) as in (1) with sediment basins.
2. Mannings n-values in the washes for existing and project conditions (with access road grading/clearing and solar dish towers in the washes) were specified as 0.03 and 0.025, respectively. Solar dish towers were not modeled as a physical flow impediment, but rather as part of a composite roughness element, which likely under represents the impact of the towers on the washes.
3. Chang (2010) did not specify an incoming sediment load at his upstream model boundary. It is unclear if this assumption was based on the culverts under Interstate 8 trapping a majority of the upstream sediments. As such, this may result in excessive amounts of scour and sediment transport since the flows will be supply limited.
4. Using the RTM (2009b) peak flows (for existing conditions only), Chang (2010) generated 6-hour triangular hydrographs for use in FLUVIAL-12. As such, these hydrographs are not as flashy and erosive as would be experienced in nature.
5. Based on the 1D numerical analysis, typical scour depths in the washes were estimated to be less than 1 foot, resulting in Chang's conclusion that it is acceptable to keep the solar dishes in the washes. However, these analyses may underestimate

scour and deposition since they are based on a lack of incoming sediment load, underestimated flows (for the smaller washes) for existing conditions hydrology only, and use simplified hydrographs that will result in less erosion than is actually likely to occur.

6. The 1D simplification of a 3D problem may also underestimate the preferential flow, transport, scour, and deposition characteristics of the site. The impact of solar dish towers in aggregate in the washes is not quantified sufficiently at the project scale, only at the dish scale to inform structural design (see Section 4.4.3).
7. Chang (2010) has demonstrated that use of the sediment basins (with concrete cutoff walls, which effectively act as grade control) can have a significant impact on the delivery of sediment through and downstream of the project site in the 10-year and 100-year floods, and hence, significant impacts like severe incision can occur. Depending on the wash that was modeled, sediment delivery through a road crossing with sediment basins in place can approach zero in a 100-year flood, with normal levels of sediment delivery resuming downstream, suggesting the washes are incising as a result of the sediment basins.

4.4.3 LOCAL SCOUR

Local scour of the solar dish towers in the washes was estimated by two independent calculations (i.e., RMT 2009b; Chang 2010) and were found to be approximately 5 feet in both. Prediction of the scour depths is important when designing the foundation depth for the towers. If the scour depth is under-predicted there is a risk of undermining the towers. The scour depth is likely under-predicted currently. It would be preferable not to locate the towers in the washes.

4.4.4 ADDITIONAL SURVEYS, DATA COLLECTION AND ANALYSIS REQUIRED

In response to the summary and critique given in the previous sections, we have concluded that the current level and type of analysis in the SA/DEIS was insufficient. Failure to undertake additional surveys, data collection and analysis, relating to hydraulics, sediment transport and scour as described below will result in significant impacts to the morphology of the desert washes, potential significant impacts to receiving waters downstream of the project site and potential dangers to the solar dish towers:

1. The sediment transport modeling must be revised with the appropriate inputs. 2D sediment transport modeling should be undertaken for existing and project conditions, to include all representative project elements (i.e., BMP effectiveness, solar dish towers in the washes, etc.). If this does not occur, there is not sufficient modeling to conclude that impacts from the project will be less than significant with proposed mitigation.

2. Long-term changes in fluvial morphology should be assessed within and downstream of the project site as a result of the project and also as a result of climate change. Long-term hydrologic simulations may be required as short-term (or design flood) outcomes only provide a "snapshot" from the starting condition. The long term degradation of the receiving waters downstream of the project site is therefore likely to be underestimated.
3. Based upon the information known about the processes on the site to date, the sediment basins should be removed from the project design. The desire to control natural sedimentation processes is unwarranted and not justified and can result in significant downstream impacts.
4. The current sediment transport analyses do not support the conclusions that the solar dishes can safely be placed in the washes or not adversely affect the morphology of the washes and therefore Drainage Alternative #1 or similar is warranted.

4.5 MITIGATION MEASURES

A review of the suggested mitigation measures provided in the SA/DEIS and associated documents has been conducted. What follows here is a summary of those investigations, including a critique followed by requirements for modification to the analyses or additional analyses.

4.5.1 SOIL BINDERS AND LINEAR SEDIMENT BARRIERS

Soil binders are proposed to be used to treat soil erosion by wind and water. The erosion control plans suggest extensive use of soil binders throughout the project site with little specifics on the placement of linear sediment barriers. The potential impacts of the soil binders on the natural characteristics of the desert pavement (specifically soil infiltration, runoff generation, and soil erosion), in addition to specifics on binder deterioration and reapplication rates, and downslope flow convergence leading to gully erosion is not investigated nor stated.

It is noted here that placement of linear sediment barriers on a project of this scope is better left to the final phases of the design. However, the effectiveness of these treatments at controlling sediment needs to be quantified for use in the soil loss calculations.

4.5.2 SEDIMENT BASINS

Sediment basins were proposed to control existing sediment movement onto, through, and off the project site by trapping it in varying sized sediment basins at property boundaries and road crossing internal to the project site. Sediment basins have the potential to starve

the fluvial system within and downstream of the project site of sediment, leading to highly detrimental changes in the morphology of the washes.

4.5.3 DRAINAGE ALTERNATIVE 1

This alternative proposed in the SA/DEIS removes the solar dishes from the washes to avoid perceived significant impacts to fluvial morphology and sediment transport. However, it fails to recognize similar significant impacts posed by the sediment basins.

4.5.4 ADDITIONAL SURVEYS, DATA COLLECTION AND ANALYSIS REQUIRED

In response to the summary and critique given in the previous sections, we have concluded that the current level and type of analysis in the SA/DEIS is insufficient. Failure to undertake additional surveys, data collection and analysis relating to potential mitigation actions will result in significant unmitigated impacts to the morphology of the desert washes, potential significant impacts to receiving waters downstream of the project site and potential dangers to the solar dish towers:

1. Justify and/or quantify proposed BMP effectiveness to better inform the hydrologic and soil loss analyses.
2. Remove the sediment basins from the project design to minimize significant impacts to the morphology of the washes onsite and offsite.
3. Refine Drainage Alternative #1 to include the removal of the sediment basins from the project in addition to removal of the solar dishes from the washes.

4.6 OFFSITE IMPACTS

A review of the offsite impacts provided in the SA/DEIS and associated documents has been conducted. What follows here is a summary of those investigations, including a critique, followed by recommendations for modification to the analyses or additional analyses.

4.6.1 HYDROLOGY

While the hydrologic model extends to Dunaway Road, which is only 1.6 miles short of the Westside Main Canal, the hydrologic model(s) do not consider project conditions hydrology nor climate change impacts on the receiving waters of the Westside Main Canal, Imperial Valley irrigated agriculture, and ultimately the New River and the Salton Sea.

4.6.2 SURFACE EROSION AND SEDIMENT YIELD

With implementation of the project, and depending on the depth of grading and BMP effectiveness, sediments and salts could be carried with surface runoff from the extensively graded project site. Considering intense rainfall and subsequent runoff occurs in the summer, these soluble salts could enter the Westside Main Canal, be applied to agricultural fields, only to ultimately enter the Salton Sea via discharge from Imperial Valley drains. Without a detailed analysis of offsite impacts, fine sediments could reach the New River.

4.6.3 HYDRAULICS, SEDIMENT TRANSPORT, AND SCOUR

With implementation of the project, or even Design Alternative #1, there will be significant impacts to the morphology of the offsite fluvial system north of the railroad and east of Dunaway Road via reductions in offsite sediment delivery.

4.6.4 ADDITIONAL SURVEYS, DATA COLLECTION AND ANALYSIS REQUIRED

In response to the summary and critique given in the previous sections, we have concluded that the current level and type of analysis in the SA/DEIS is insufficient. Failure to undertake additional surveys, data collection and analysis relating to potential offsite impacts will result in significant impacts to receiving waters downstream of the project site. The domain of impact to the Salton Sea should be assessed since this site is situated in the watershed of the Salton Sea:

1. The hydrologic, hydraulic and sediment transport models domain of analysis should extend sufficiently far downstream to be able to characterize any potential impacts to the receiving waters downstream of the project site.

STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the IMPERIAL VALLEY SOLAR PROJECT	Docket No. 08-AFC-5

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

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IMPACTS FROM UPGRADES TO THE SEELEY WASTEWATER TREATMENT FACILITY

The applicant has not provided any new testimony from which to evaluate impacts associated with upgrades to the Seeley Wastewater Treatment Facility (SWWTF). It is my professional opinion that the various components of the Imperial Valley Solar Project (including the SWWTF, power generation facilities, and linear features), and the synergistic interactions among the components, would have adverse effects on the health of the Salton Sea watershed. In addition to my opening testimony, I provide a discussion of these adverse effects in my comment letter to the Army Corps that is attached as an exhibit with this rebuttal testimony. I anticipate submitting additional comments once the applicant has submitted its hydrology study and the results of protocol-level plant and animal surveys.

IMPACTS TO THE FLAT-TAILED HORNED LIZARD

Culvert Use

The applicant has testified that movement of flat-tailed horned lizards (FTHL) between the Yuha Desert Management Area (south of I-8) and the Project site is "unlikely as there is only a single culvert that offers potential access, the extended distance through the culvert between these areas, and the lack of access to all the remaining culverts."[1] The applicant's testimony lacks support and contravenes the scientific method:

1. The applicant has not provided any scientific basis to support its conclusion that only a single culvert offers potential access between the Yuha Desert Management Area (MA) and the Project site. Specifically,
    a. The applicant has not provided <u>any</u> data (quantitative or qualitative) to explain what prevents or enables FTHL access to the various culverts that were examined.
    b. The applicant has not referenced a single source of information that provides research on, or otherwise describes, what prevents or enables FTHL access to culverts (or any other feature).
2. The applicant has not provided any scientific basis to support its conclusion that the distance of the culverts makes FTHL movement unlikely. Culvert length is believed to be one of the variables that influences wildlife use. However, the effect of culvert length on FTHL has not been examined. Painter and Ingraldi (2007) studied FTHL use of 40-foot long culverts. Their observations were that: "[d]ark culverts were used more frequently (9 crossings) than culverts with skylights (3 crossings)."[2] Some of the FTHL used for the study were even found lingering inside the dark culvert for several hours before passing all the way

[1] Testimony of Pat Mock, response to question #9.
[2] Painter ML, MF Ingraldi. 2007. Use of Simulated Highway Underpass Crossing Structures by Flat-Tailed Horned Lizards (*Phrynosoma mcallii*), Final Report 594. Arizona Department of Transportation, Phoenix, Arizona. Exhibit 445.

> through. This led the researchers to conclude that lizards may use culverts as thermoregulatory microhabitat or hiding cover because they provide vertical structure.[3]

I have reviewed the photographs of the culverts provided by the applicant. Based on those photographs, I have concluded that several of the culverts under I-8 may be accessible to FTHL. Regardless of whether FTHL use the culverts, the applicant's testimony ignores the fact that FTHLs will cross roads, and they currently may do so to access the Project site and move between MAs.

As a result of these issues, it is my professional opinion that the Project continues to pose an unmitigated, significant impact to FTHL movement.

Impacts of Project Noise

The applicant has testified that "[c]onstruction noise will not be an issue for the FTHL as all lizards detected during construction will be translocated off site and they are not considered to be noise sensitive. Mitigation measures BIO 9, BIO 10 and BIO 11 will ensure that impacts to the FTHL are mitigated to a less than significant level."[4]

Once again, the applicant's testimony is misleading and completely lacks any scientific basis. First, it fails to acknowledge the undisputed fact that FTHL are notoriously hard to detect. As a result, some FTHL will remain on the site despite the translocation effort. The lizards that remain on the site will be subject to noise and many other threats (e.g., ground disturbance).

Second, the statement that FTHL are "not considered to be noise sensitive" is nothing more than a vague (e.g., *who* considers them insensitive to noise?) and untested claim. Notably, the applicant did not submit any evidence to support the claim that FTHL are not considered to be noise sensitive. Studies have shown that certain desert reptiles **are sensitive** to low-intensity sound.[5] Bondello et al. (1979) tested the effects of dune buggy sounds on the hearing of Mojave fringe-toed lizards.[6] All noise-exposed lizards suffered actual hearing loss after exposure to 510 seconds of 95-dB dune buggy sounds. Surprisingly, the lizards appeared to be vulnerable to noise-induced hearing loss even when buried beneath shallow layers of sand.

According to the Flat-tailed Horned Lizard Rangewide Management Strategy (RMS), it is not known whether noise at levels and durations anticipated in the desert negatively impact FTHLs.[7] However, the RMS concluded effects are more likely where prolonged,

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[3] *Id.*
[4] Testimony of Pat Mock, response to question #9.
[5] Manci KM, DN Gladwin, R Villella, MG Cavendish. 1988. Effects of aircraft noise and sonic booms on domestic animals and wildlife: a literature synthesis. National Ecology Research Center Report # NERC-88/29.
[6] Bondello MC, AC Huntley, HB Cohen, BH Brattstrom. 1979. *In Id.*
[7] Flat-tailed Horned Lizard Interagency Coordinating Committee. 2003. Flat-tailed horned lizard rangewide management strategy, 2003 revision. 80 pp. plus appendices. p. 14. Exhibit 440.

loud noise occurs (such as the noise generated by the 30,000 SunCatchers).

Third, the applicant's testimony ignores the adverse effects Project noise may have on FTHL outside of the Project boundaries. Adverse effects of noise on FTHL in areas directly surrounding the Project site should be analyzed and mitigated.

Lastly, the applicant's testimony ignores the noise generated by Project operation and maintenance activities. For example, in the Calico Solar Project proceeding, Energy Commission staff concluded noise from the SunCatchers would limit, and in some cases preclude, the use of habitat (for wildlife in general) adjacent to the project site.[8] The same conclusion should be reached here. The applicant has proffered no evidence to suggest otherwise.

Mitigation

The applicant has testified that FTHL mitigation consists of 1:1 for onsite habitat acreage impacts and 5:1 for impacts within the Yuha Desert MA. The applicant further testifies that the mitigation for impacts to FTHL is consistent with the agency approved management strategy.[9] The applicant's testimony is potentially misleading for the following reasons:

1. The applicant's compensatory mitigation consists of a fee payment to the Bureau of Land Management. Provision of the fee does not guarantee Project impacts to FTHL habitat will be offset (I discussed this issue in my opening testimony). Members of the Interagency Coordinating Committee, which oversees implementation of the FTHL Rangewide Management Strategy, have expressed concerns over the limited availability of private land for habitat acquisition, and the purchasing power of compensation funds over time (i.e., the lag time between when money is received and spent).[10]
2. The agency approved management strategy requires the applicant to mitigate or compensate for indirect impacts, impacts the applicant's proposed mitigation generally ignores. The "agency approved management strategy" is the FTHL Rangewide Management Strategy (RMS). The RMS provides "[i]f these and other adverse indirect effects (e.g., habitat fragmentation, decreased FTHL density near roads) cannot be mitigated (with FTHL barriers or corridors, for e.g.), compensation for indirect effects will be required."[11] As discussed in my opening testimony, the applicant has not properly mitigated the indirect impacts of the Project. Indirect impacts, such as those that would result from the Project, are known to have a significant adverse effect on FTHL. Because the applicant has made few attempts to mitigate the Project's indirect impacts, the proposed mitigation should not be considered consistent with the RMS.

[8] Calico Solar SA/DEIS, p. C.2-84, 85.
[9] Supplemental testimony of Patrick Mock, response to question #10.
[10] ICC Meeting Minutes.
[11] [emphasis added] Flat-tailed Horned Lizard Interagency Coordinating Committee. 2003. Flat-tailed horned lizard rangewide management strategy, 2003 revision. 80 pp. plus appendices. p. 64. Exhibit 440.

SPECIAL-STATUS PLANT SPECIES

Need for Fall Surveys

I concur with the Energy Commission and Bureau of Land Management's conclusion that fall surveys are necessary to assess the presence of special-status plant species within the Project area. My conclusion is based on:

1. Consultations with several botanical experts with particular knowledge of the Desert Floristic Province (e.g., Dr. Jim Andre,[12] Dr. Bruce Pavlik,[13] and Greg Suba[14]).
2. Review of natural history information associated with various plant species known to occur in the Project region.
3. Review of historic rainfall data from rain gauges located both east (El Centro) and west (Ocotillo 2 and Coyote Wells) of the Project site.

In rebuttal and supplemental testimony, the applicant states it does not believe fall surveys are necessary.[15] This conclusion is based on a number of unsupported statements and inaccurate data. The applicant provides almost no scientific evidence to support this position. Furthermore, the applicant's rationale supports the need for additional plant surveys. In the subsequent sections I provide a review of the assertions that the applicant used to support the conclusion that fall surveys are unnecessary.

RAINFALL DATA

The applicant testified that "[f]all rains were 70% of normal in 2007 and 1% of normal in 2008."[16] This testimony by the applicant is not accurate. Rainfall data provided by the applicant were collected at the "El Centro 2 SSW" station, and were obtained from the Western Regional Climate Center.[17] The data (Table 1) do not support the applicant's statement.[18] For the El Centro station, they indicate: (a) above average rainfall in September and November 2007, and July and August 2008; (b) above average fall rainfall in 2007; and (c) missing data from which to assess October, November, and total fall rainfall in 2008.

[12] Director of the Sweeney Granite Mountains Desert Research Center for the University of California.
[13] Professor of Biology and Gibbons-Young Chair for the Advancement of Science, Mills College.
[14] Conservation Director for the California Native Plant Society.
[15] Testimony of Pat Mock, response to question #3.
[16] *Id.*
[17] Applicant's response to CURE data request 34. Applicant's exhibit #13.
[18] Western Regional Climate Center [internet]. 2010. Period of Record Monthly Climate Summary, El Centro 2 SSW, California. Available at: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca2713.

Table 1. Inches and mean percent of precipitation recorded at the El Centro 2 SSW station. Months with above average precipitation are shaded gray.

	Jul	Aug	Sep	Oct	Nov	Total
2007	0.00 (0.0)	0.14 (0.42)	0.37 (1.37)	0.00 (0.0)	1.03 (5.72)	1.54 (1.36)
2008	0.12 (1.5)	0.47 (1.42)	0.06 (0.22)	N/A	N/A	N/A
Mean[a]	*0.08*	*0.33*	*0.27*	*0.27*	*0.18*	*1.13*

[a] From years 1932-2009.

POSSIBLE FALL SPECIES

The applicant testified: "[a]s suggested by Joy Nishida of the CEC, only 2 summer/fall flowering special-status species are known from Imperial County."[19] The applicant provides nothing to substantiate this claim. In the SA, Joy Nishida testified "many ephemerals bloom after the summer monsoonal rains in the desert so the documentation of the occurrence of *many* additional plant species may be lacking."[20] Moreover, the lack of data about a species in the region "should not be used as verification that the species does not exist in a given location."[21] This is explicitly stated in the Bureau of Land Management (BLM) plant survey protocol, which applies to the Project.

DETECTABILITY DURING THE SPRING

The applicant testified that desert unicorn-plant…as a perennial… would have been recognizable during the prior surveys.[22] The applicant's testimony is refuted by its own survey results. Desert unicorn-plant is a perennial herb. Of the five special-status plant species that have been newly detected during the applicant's 2010 surveys, two are perennial herbs and one is a perennial shrub.[23] Yet, these species were apparently not "recognizable" during the applicant's prior (i.e., 2007 and 2008) surveys.

When asked if he had an opinion as to why special-status plant species were identified in 2010 but not during the two previous surveys, Michael Wood testified that it was because the 2009-2010 winter rainy season ended a severe three-year drought.[24] However, Mr. Wood's testimony conflicts with the applicant's previous statement that "[l]arge scrub/tree species like crucifixion thorn would likely have been detected regardless of

[19] Testimony of Michael Wood, response to question #7.
[20] SA/DEIS, p. C.2-20. [emphasis added].
[21] Bureau of Land Management. 2009. Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species. Exhibit 439.
[22] Testimony of Michael Wood, response to question #7.
[23] Testimony of Michael Wood, response to question #3.
[24] Testimony of Michael Wood, response to question #4.

rainfall conditions."[25] Crucifixion thorn is morphologically similar to Wiggin's croton, which was detected in 2010 but not 2007 or 2008.

RECENT ADDITIONS TO THE CNDDB

The applicant testified that four species were added to the California Natural Diversity Database (CNDDB) vicinity list after the 2008 surveys: chaparral sand verbena, pink fairy duster, Thurber's pilostyles and dwarf germander. This testimony only supports the position that the applicant should not rely on a preconceived list of target species to define the parameters of the survey (e.g., determine what species to look for and when to survey). Instead, the survey parameters should be defined by the environmental conditions (e.g., rainfall) that affect plant detection.

THRESHOLD FOR NEED

Project botanist Michael Wood testified: "[i]n my experience, it seems like an extraordinary requirement to complete fall surveys for a single species whose likelihood of being present onsite is moderate."[26]

First, I believe the applicant has sufficiently demonstrated that it does not have a lot of skill in predicting likelihood of plant occurrence. The applicant's comments on the SA/DEIS said the following about Wiggin's croton:

> The reported nearby sighting of *Croton wigginsii* has been withdrawn by BLM staff. *Croton wigginsii* is not known within 10 miles of the site. Croton shrubs if present would have been detectable and probably identifiable at the time of the surveys. In addition, this particular plant is found in sand dune habitat, a habitat type that is relatively rare within the site. Just stating "suitable habitat occurs on the project site" implies that all or most of the site contains suitable habitat. This is important because a question that can potentially arise is the feasibility of Mitigation Measure BIO-19, which heavily relies on new surveys and subsequent avoidance if sensitive plants are found.[27]

The applicant then went on to recommend Wiggin's croton be **completely deleted** from the SA/DEIS's list of potentially occurring special-status species.[28] Seven Wiggin's croton plants were recently detected during the applicant's 2010 surveys.

Second, fall surveys would still be required even *if* only one species had the potential to occur. According to the BLM plant survey protocol:

> Inventories must be timed so that contractors can both locate and positively identify target plant species in the field. Inventories must be scheduled so that they will detect all special status species present. A single inventory on a single

[25] Applicant's comments on the SA/DEIS, p. 17. Applicant's exhibit #28.
[26] Testimony of Michael Wood, response to question #7.
[27] Applicant's comments on the SA/DEIS, p. 17. Applicant's exhibit #28.
[28] Applicant's comments on the SA/DEIS, p. 18. Applicant's exhibit #28.

> date will seldom suffice. For example, when one special status plant species suspected to be in the inventory can only be found and identified in April and another species can only be located and identified in August, at least two inventories are necessary. The first inventory can facilitate the second and/or third inventory, however, if potential sites for the late-flowering species are flagged during the first inventory.

Therefore, the protocol has made it very clear that inventories are required even if only one special-status plant species is suspected.

Quality of Prior Plant Surveys

The applicant continues to argue that its botanical surveys were consistent with agency guidelines in force at the time of the survey effort.[29] The applicant's argument has absolutely no validity. Table 2 provides a comparison of the applicant's plant surveys with the 2000 California Department of Fish and Game (CDFG) plant survey guidelines.

Table 2. Comparison of applicant's surveys with CDFG protocol guidelines.

CDFG survey guidelines (2000)	Applicant's plant surveys
Surveyors should possess experience conducting floristic field surveys, knowledge of plant taxonomy, and familiarity with special-status species that occur in the region being surveyed.	Based on their resumes, many of the surveyors did not meet this requirement. It appears several surveyors had no prior botanical survey experience.[30]
Surveys should be conducted when rare plants are evident and identifiable. Sufficient number of visits spaced throughout the growing season.	Debatable and unknown (due to lack of reference sites). Limited spring survey window during below average rainfall years. No fall surveys.
Surveyors should visit reference sites.	Not done.[31]
Surveys should be conducted using systematic field techniques.	Not done. Meandering transects do not constitute a systematic technique.[32]
Every plant observed should be identified to the extent necessary to determine its rarity and listing status.	Not done. Applicant reported *Lepidium* sp., *Mentzelia* sp., *Camissonia* sp., and *Astragalus* sp.[33] All of these genera have species that are listed as special-status.

[29] Testimony of Pat Mock, response to question #3.
[30] S*ee* Supplemental Information in Response to CEC Data Adequacy Requests and BLM Minimum Requirement Comments dated September 2008. Applicant's exhibit #6.
[31] Applicant's response to CURE data request #144. Applicant's exhibit #17.
[32] Applicant's response to CURE data request #31. Applicant's exhibit #13.
[33] *See* Application for Certification, Vol. II, Attachment B of Biology Technical Report. Applicant's exhibit #1.

EIRs and EIS should provide a detailed description of survey methodology.	Not provided. Survey methods were reported as: "[s]pecial-status plant surveys were conducted in 2007 and 2008 during the months of March and May to maximize the probability of detection of blooming annuals. Special-status plant surveys were conducted either concurrently with vegetation habitat surveys, or as focused species surveys during appropriate blooming periods, throughout the Project Site and along the off-site transmission line and waterline."[34]
Report total person-hours spent on field surveys.	Hours for 2007 surveys were never provided. Hours for 2008 were provided after two rounds of data requests by CURE.[35]
Report persons contacted, herbaria visited.	None reported.

Energy Commission staff has agreed that the applicant's surveys were not done properly, and thus were inadequate to document occurrence of special-status plant species. It was on that basis that fall surveys were requested by staff. Fall surveys are needed and should be conducted. I reserve the right to provide additional testimony once these surveys are completed and the results have been provided in a report that meets the minimum standards established by the protocols.

Mitigation for Impacts to Special-Status Plant Species

In supplemental testimony, the applicant states "**[m]aintaining sustainable populations [of plants] on the project is not practicable** given the sensitivity status of the species, the small numbers present, and their distribution within the project boundaries. Offsite habitat mitigation for FTHL will also benefit rare plant resources in the project vicinity."[36] The applicant's supplemental testimony is extremely important: it demonstrates that the applicant is unable or unwilling to comply both with the mitigation *strategy* and *conditions* set forth in the SA/DEIS. Condition of Certification BIO-19 requires the applicant to protect "any populations of listed plant species identified during the surveys."[37] Wiggin's croton, which was recently detected on the site, is listed as Rare by the State of California.[38]

The applicant has no scientific basis to conclude mitigation for FTHL will also benefit rare plant resources in the project vicinity. First, the SA/DEIS enables compensation lands to be "poor quality habitat";[39] and/or compensation funds to be applied to other purposes besides land acquisition (e.g., educational purposes or management actions).[40]

[34] Application for Certification, Vol. I, p. 5.6-6. Applicant's exhibit #1.
[35] *See* Applicant's response to CURE data request #151. Applicant's exhibit #17.
[36] Supplemental testimony of Patrick Mock, response to question #11.
[37] SA/DEIS, p. C.2-98.
[38] Testimony of Michael Wood, response to question #3.
[39] *Id.*
[40] SA/DEIS, p. C.2-42.

Second, lands targeted for acquisition are supposed to be within the nearest FTHL MA.[41] This would be either the Yuha Desert or West Mesa MA. However, based on database records from the CNDDB and Consortium of California Herbaria, the special-status plant species that occur on the Project site do not occur in either the Yuha Desert or West Mesa MA (Figures 1-3).[42] [43]

When asked how the recent detection of five different special-status plant species affected his conclusion on the Project's potential impacts and mitigation, Patrick Mock testified that "given the level of habitat conservation in the project vicinity (Anza Borego [*sic*] State Park, BLM Management Areas), it is *likely* that these sensitive species are adequately conserved offsite."[44]

In my opinion, Dr. Mock's testimony demonstrates that the applicant has not made any real attempt to assess Project impacts and mitigation for special status plants species. Besides failing to provide anything to substantiate that the species *are* adequately conserved offsite, Dr. Mock's testimony failed to convey the local or regional significance his findings.[45] In that regard, occurrence records from the CNDDB and Consortium of California Herbaria reveal the following:

- The Project site represents the westernmost range of Wiggin's croton. The next nearest occurrence is approximately 42 miles to the east (Figure 2). In addition, development in the Imperial Valley isolates the population on the Project site from all other known occurrences (Figure 4).
- The population of brown turbans on the Project site represents the southernmost and easternmost known population of the species in California (Figure 2).
- The population of Utah vine milkweed on the Project site represents the southernmost known population of the species in California (Figure 3).

Peripheral populations, such as these, are important for the long-term conservation of genetic diversity and evolutionary potential, especially when considering the need to adapt to future climate change. Dr. Mock cannot simply presume the responsibility to mitigate Project impacts will be borne by some other entity.

[41] SA/DEIS, p. C.2-85.
[42] Data provided by the participants of the Consortium of California Herbaria (ucjeps.berkeley.edu/consortium/).
[43] California Natural Diversity Database. 2009. Rarefind [computer program]. Version 3.1.0. Mar 2, 2010. Sacramento (CA): Wildlife & Habitat Data Analysis Branch. California Department of Fish and Game.
[44] Supplemental testimony of Patrick Mock, response to question #6. [emphasis added].
[45] CEQA §15125 (c).

Map 1. Management areas of the Flat-tailed Horned Lizard (*Phrynosoma mcallii*) in relation to the Solar Two project site.

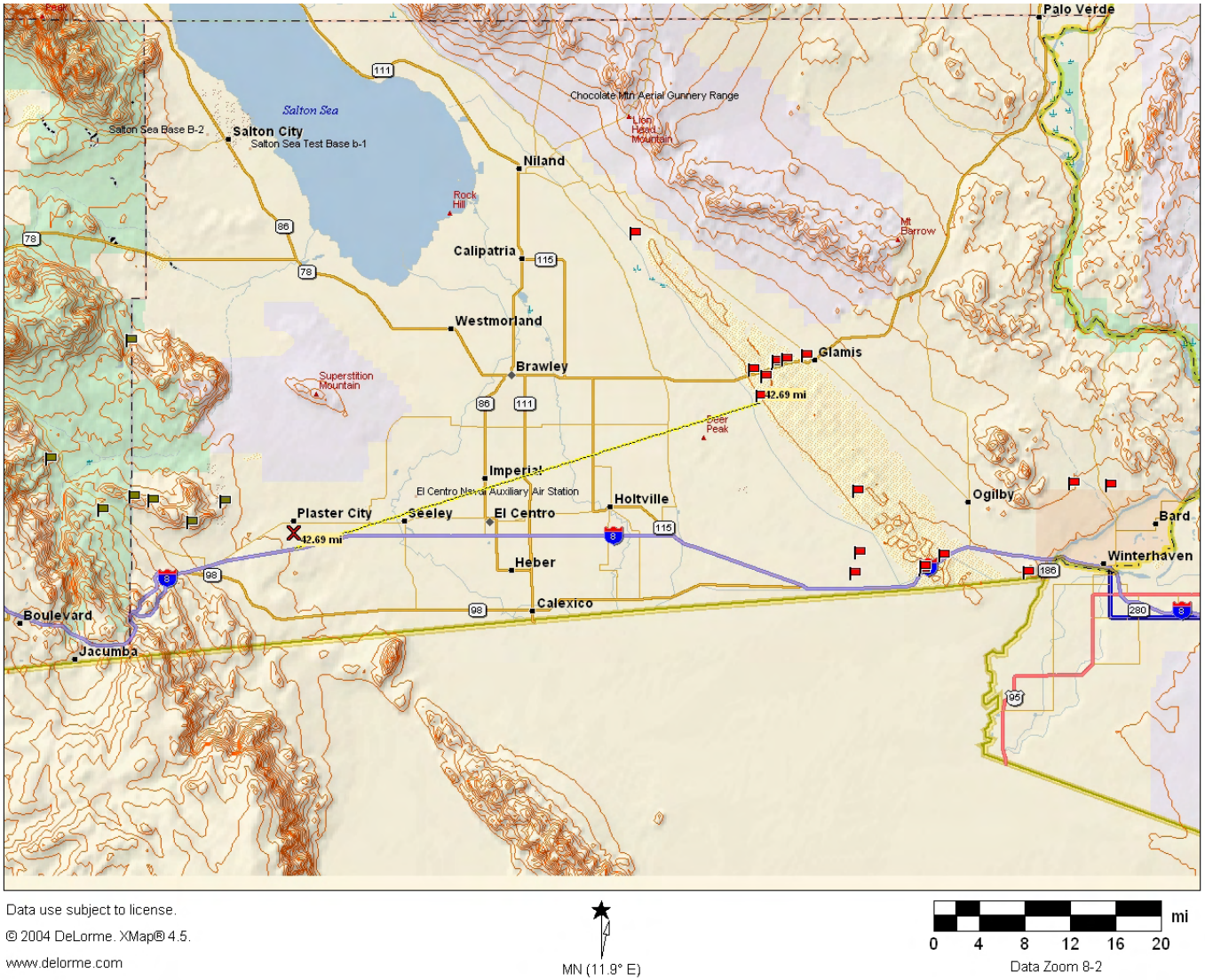

Figure 2. Known occurrences of brown turbans (copper flags) and Wiggin's croton (red flags) in the Project vicinity.

Figure 3. Known occurrences of Utah vine milkweed in the Project vicinity.

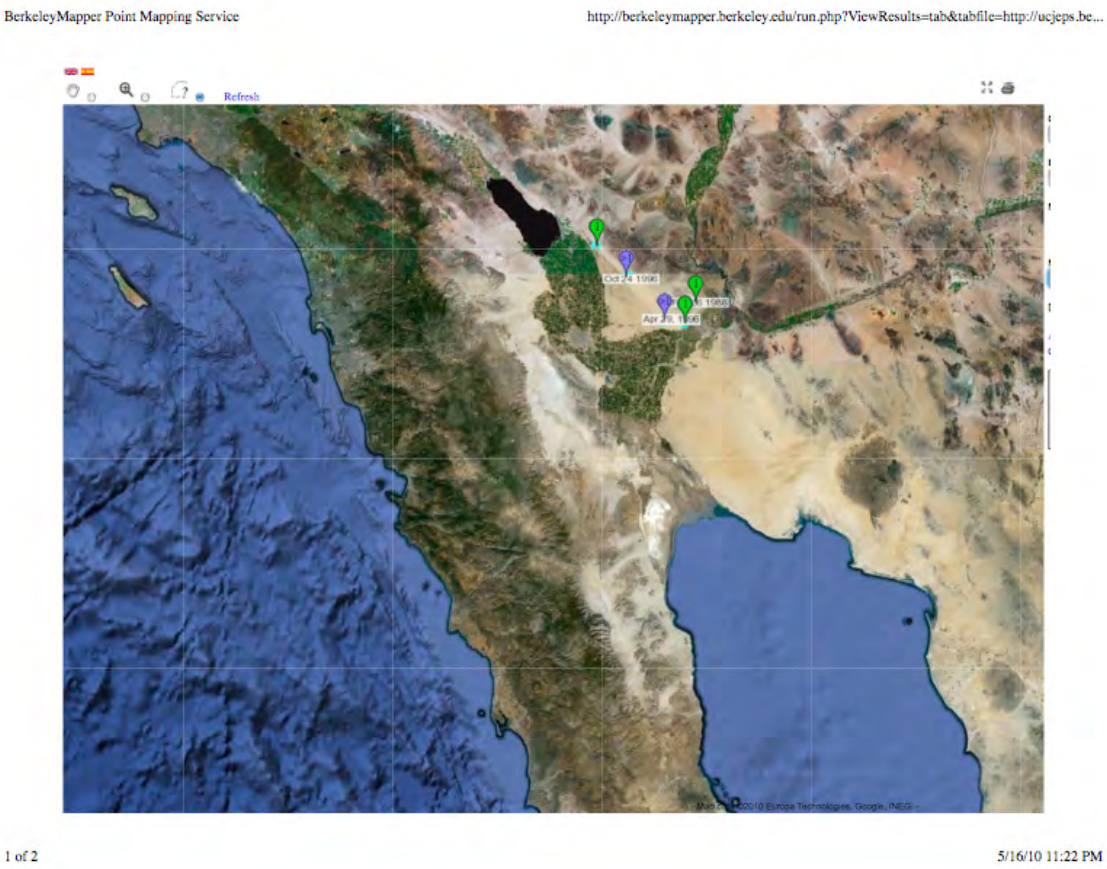

Figure 4. Occurrences of Wiggin's croton documented since 1985 (excluding recent occurrence on the Project site).[46]

[46] Data provided by the participants of the Consortium of California Herbaria (ucjeps.berkeley.edu/consortium/).

QUALITY OF BIOLOGICAL RESOURCE SURVEYS

a. Agency Approval of Applicant's Surveys

The applicant's supplemental testimony concluded that the surveys performed for the Project adhered to either approved protocols or modified protocols that were approved in advance by the agencies.[47] The applicant's testimony is misleading. First, the applicant **only** attempted protocol (or focused) surveys for rare plants and FTHL.[48] The applicant relied on **incidental observations** to document all other sensitive wildlife species.[49] With respect to the burrowing owl, failure to implement the recommended survey guidelines is a violation of CEC Siting Guidelines. Second, the applicant's surveys did not follow protocol as suggested by the applicant (see prior discussion of applicant's plant surveys, and information provided in a letter that I submitted to the California Energy Commission and Bureau of Land Management. This letter is attached as an exhibit with this rebuttal testimony).

b. Surveyor Experience

The applicant has testified that "[i]n all cases the individuals performing the surveys either had or were under the direct oversight of [an] individual that had appropriate training and levels of experience to perform the surveys."[50] This statement lacks credibility. Based on the resumes provided by the applicant: (a) none of the FTHL surveyors had any prior experience conducting surveys for the species; and (b) many of the individuals used for plant surveys had a very limited amount of prior training and experience.[51] [52]

IMPACTS TO GOLDEN EAGLE

The applicant has testified that "[t]here are no known golden eagle nesting areas within 10 miles of the site, so the site is consider [*sic*] potential foraging habitat for raptor species such as eagles, but no effects to nesting eagles is expected."[53] The applicant's testimony is misleading. The lack of data should not be used as verification that a species does not exist in a given location, especially because the applicant made no attempt to document golden eagle nest sites. Identifying golden eagle nests generally entails helicopter surveys. The applicant did not conduct these surveys, or any other activities directed at identifying Project impacts to golden eagles. In addition, the applicant has provided no indication that it attempted to obtain data that may be available from helicopter surveys conducted by SDGE (in support of the Sunrise Powerlink).

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[47] Supplemental testimony of Patrick Mock, response to question #4.
[48] Applicant's response to CURE data request 83. Applicant's exhibit #13.
[49] AFC, p. 5.6-6. Applicant's exhibit #1.
[50] Supplemental testimony of Patrick Mock, response to question #4.
[51] Data adequacy supplement. Applicant's exhibit #6.
[52] *See* Applicant's response to CURE data requests # 150, 149, 151. Applicant's exhibit #17.
[53] Supplemental testimony of Patrick Mock, response to question #12.

The applicant identifies the Project site as potential foraging habitat for golden eagles. The SA/DEIS concluded the potential loss of foraging habitat for golden eagles may require a permit for take under the Bald and Golden Eagle Protection Act.[54] However, neither the applicant nor the SA/DEIS have provided any mitigation for loss of golden eagle foraging habitat. As a result, it remains a potentially significant, unmitigated Project impact.

DESERT KIT FOX AND AMERICAN BADGER

The applicant has testified that the desert kit fox is not listed as a protected species, and that the State definition of "take" is not applicable.[55] I recognize the protection afforded desert kit fox is a confusing issue for many project proponents. However, Title 14, Section 460 of California Code states: "[f]isher, marten, river otter, *desert kit fox* and red fox may not be *taken* at any time."[56] At a recent Staff Assessment workshop held for the Genesis Solar Project, Magdalena Rodriguez, Environmental Scientist for the California Department of Fish and Game, confirmed that the regulation applies to <u>any</u> activities that may cause take of desert kit fox.

For the American badger, the applicant states the badger's designation as a California Species of Special Concern carries no formal legal status.[57] CEQA guidelines direct lead agencies to consider whether a project would "[h]ave a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or *special status species* in local or regional plans, policies, or regulations, or *by the California Department of Fish and Game* or U.S. Fish and Wildlife Service."[58]

Regarding impact avoidance and mitigation, the applicant has testified that Condition of Certification BIO-15 reduces the potential for mortality to desert kit fox, and that passive removal will be sufficient to protect badgers.[59] I do not believe this issue has been fully addressed, particularly with respect to fencing and the roadways. The entire Project site would be surrounded by a fence that would prevent ingress and egress of most wildlife. The key segments of the perimeter fence are likely to be installed during early phases of construction to establish site control and security.[60] In testifying that badgers are not likely to remain on the site during construction due to increased human activity, the applicant suggests badgers (and presumably kit fox) will be present onsite when construction begins, at which time they will be forced to flee. However, it appears once construction begins, the perimeter fence will be in place and badgers and kit fox will be trapped within the construction zone.

Irrespective of Project fencing, roads surround the Project site. These include I-8, which is a heavily traveled. Badgers, kit fox, and other wildlife that are forced (or encouraged)

[54] SA/DEIS, p. C.2-57.
[55] Testimony of Pat Mock, response to question #10.
[56] [emphasis added].
[57] Testimony of Pat Mock, response to question #10.
[58] CEQA Appendix G: Environmental Checklist Form. [emphasis added].
[59] Testimony of Pat Mock, response to question #10 and #11.
[60] Applicant's response to CURE data request #91. Applicant's exhibit #13.

to leave the site will have to cross at least one roadway, where they will be subject to collisions with vehicles. Animal-vehicle collisions are known to be a serious hazard to wildlife, and people.

Neither the applicant nor the SA/DEIS has analyzed or mitigated these potentially significant impacts to desert kit fox, badger, and public safety.

SENSITIVE NATURAL COMMUNITIES

The California Department of Fish and Game has identified vegetation series or associations that are considered rare and worthy of consideration by CNDDB.[61] CEQA guidelines direct lead agencies to consider whether a project would "[h]ave a substantial adverse effect on any riparian habitat *or other sensitive natural community identified* in local or regional plans, policies, regulations or *by the California Department of Fish and Game* or US Fish and Wildlife Service."[62]

The applicant has indicated that no sensitive natural communities are present within the Project study area.[63] This contradicts anecdotal reports issued by members of the public who have visited the site. As a result, I had a six-person field crew investigate the site to document whether any sensitive natural communities were present. The field crew spent the entire day of 9 May 2009 on the Project site, during which time they documented the following sensitive natural communities or associations (Table 3):

Table 3. Sensitive natural communities/associations present on the Project site.

Community/Association	Location (UTM zone 11S)
Smoketree Wash Woodland	Approximately 50m long centered at 602791 3624582
Smoketree Wash Woodland	Extending 250 m from 602861 3624208
Creosote Bush- Big Galleta	602303 3626641
Creosote Bush-White Bursage-Indigo Bush	603050 3625071
Creosote Bush-White Ratteny-Big Galleta	603008 3625809
Creosote Bush-White Ratteny-Big Galleta	601182 3625697
Creosote Bush-White Ratteny-Big Galleta	601219 3625673 to 601355 3625534
White Bursage-Big Galleta	601592 3625452 to 601639 3625395
White Bursage-Big Galleta	601623 3625355
White Bursage-Big Galleta	606439 3626475
Creosote Bush-White Ratteny-Big Galleta *and* White-Bursage-Big Galleta	601337 3625165
Creosote Bush-Big Galleta *and* White Bursage-Big Galleta	606173 3626408
Mesquite Woodland	606581 3626385

[61] Department of Fish and Game. List of California Terrestrial Natural Communities Recognized by The California Natural Diversity Database. September 2003 edition.
[62] CEQA Appendix G: Environmental Checklist Form. [emphasis added].
[63] Application for Certification, Vol. I, p. 5.6-9. Applicant's exhibit #1.

Creosote Bush-White Bursage - Cryptogrammic crust	Various locations throughout.

The field crew did not have time to examine the entire Project site. Therefore, additional sensitive natural communities may be present, and the information I have presented should not be used to evaluate the abundance of sensitive communities/associations. However, it provides evidence that the applicant and SA/DEIS have not provided full disclosure of relevant environmental information, including the impacts of the Project on sensitive natural communities. Without this information, neither the Commission nor the public has any understanding of the impacts of the Project on sensitive natural communities. In my opinion, these impacts are potentially significant and unmitigated.

Cryptobiotic Soil Crusts

Cryptobiotic (or cryptogrammic) soil crusts are communities of cyanobacteria, lichens, and mosses. These crusts bind fine soil particles by linked cyanobacterial fibres, which protect the soil from wind erosion. Several studies have suggested that the presence of cryptobiotic crusts dramatically decreases wind and water erosion.[64] When disturbed, cryptobiotic crusts lose most of their protective qualities allowing mobilization of the underlying mineral soils.[65]

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 & Belnap, 1999).

The Project would involve site grading for roadways and foundations, the removal of topographic undulations, and within channels to "improve" hydraulics. Site grading will destroy vegetation. In addition, the Project would involve brush trimming between every other row of SunCatchers (i.e., the power generation units) and trenching for underground piping and infrastructure. Schlesinger and Pilmanis (1998) have reviewed field experiments in which shrubs have been removed by cutting, herbicides, or fire. These 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

[64] 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. Exhibit #447.
[65] *Id.*

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.

PROJECT WATER SUPPLY

On 6 May 2010 the applicant docketed a supplement to the AFC. The supplement contains hundreds of pages of analysis of environmental impacts pertaining to the use of water from the Dan Boyer Water Company. Because the material was only recently submitted, and because its submittal coincided with preparation of rebuttal testimony, we have not yet had the opportunity to fully assess it. However, I have made the following preliminary observations of the applicant's analyses:

1. The Project would require approximately 50 acre-feet per year (afy) during construction.[66] [67] Construction is expected to last 39 to 40 months.[68] However, the Dan Boyer Water Company operates a well that is restricted to 40 afy.[69] The applicant has not explained how it will meet the demand of 50 afy with a supply of 40 afy.
2. The Dan Boyer Water Company draws water from a "sole source aquifer." Designation as a sole source aquifer provides the EPA with the authority to review federal financially assisted projects planned for the area to determine their potential for contaminating the aquifer.[70] However, neither the applicant, nor the SA/DEIS, has discussed if and when the EPA review would occur.
3. According to the applicant, "[t]he Project would not introduce any contaminants into the aquifer, and an aquifer test performed for this well indicates that pumping of the well at the prescribed rates will have no significant impact on water levels and water quality in the area, as the zone of influence (ZOI) is considerably less than the distance to the closest well, approximately 500 feet away."[71] These conclusions appear to conflict with those provided in the Draft Environmental Impact Report (DEIR) conducted for the US Gypsum (USG) expansion project. Specifically, the DEIR concluded:

[66] Rebuttal testimony of Matt Moore.
[67] SA/DEIS, p. C.7-15.
[68] *Id.* and Rebuttal Testimony of Matt Moore.
[69] Supplement to the AFC, p. 1-2. Applicant's exhibit #32.
[70] Supplement to AFC, p. 2-3. Applicant's exhibit #32.
[71] *Id.*

a. Increased pumping from USG wells could degrade water quality in individual wells due to lateral migration of higher TDS water located to the east of Coyote Wells, lateral migration of higher TDS water from areas near outcrops of Tertiary marine sediments, or vertical migration of water from or near Tertiary marine sediments underlying the alluvial aquifer throughout most areas of the basin. This impact was considered significant.

b. Increased pumping of USG wells could reduce water levels throughout broad areas of the Ocotillo/Coyote Wells Basin, reducing the total amount of water available in the basin. This was considered a significant, unavoidable, and unmitigable impact on the Basin-wide groundwater.

c. Increased pumping of USG wells and the additional commercial pumping from the *Westwind well* (i.e., the Dan Boyer well) could reduce water levels, increasing the cost of pumping groundwater, causing some wells to go dry, and reducing the amount of available water in the Groundwater Basin. The combined effects of the Proposed Action and the proposed additional pumping from the *Westwind well* have the potential to cause cumulative impacts on water levels and water quality in the Groundwater Basin. The impact was considered significant, and the conclusion was made even though the modeling conducted for the DEIR assumed the Dan Boyer well would pump less water than has been proposed by the applicant (i.e., 40 afy).[72]

d. Increased pumping of USG wells and the additional commercial pumping from the *Westwind well* could degrade water quality due to lateral migration of higher TDS water located to the east of Coyote Wells, lateral migration of higher TDS water from areas near outcrops of Tertiary marine sediments, or vertical migration of water from or near Tertiary marine sediments underlying the alluvial aquifer throughout most areas of the Groundwater Basin. The Proposed Action could result in a significant impact on water quality in the Groundwater Basin. The cumulative impact of the additional commercial pumping (i.e., pumping of the Dan Boyer well) has the potential to further exacerbate this impact.

4. The applicant has testified that "[i]t was determined that it [Dan Boyer water] is a reliable water source and would not result in significant impacts if used for the life of the Project, if needed."[73] However, the applicant did not analyze the impacts associated with using the water for the life of the Project, but instead assumed that the Project would require water from the Dan Boyer Water Company for approximately six months to three years.[74] Further, the applicant does not have a contractual agreement to purchase water; the "will serve letter" provided in the AFC supplement only provides an option to purchase water

[72] US Gypsum DEIR, p. 3.3-106, provided in Supplement to AFC, Section 2. Applicant's exhibit #32.
[73] Rebuttal testimony of Matt Moore.
[74] Letter from Robert Scott, URS Corporation, to Richard Know, Tessera Solar. Provided in Supplement to AFC, Section 3. Applicant's exhibit #32.

temporarily. None of this information was included in the SA/DEIS and it has not yet been evaluated by Staff.

5. The applicant concluded that "[c]omparison of the water quality data collected following our aquifer test is identical to that observed in well 16S/9E-36G4 [i.e., the Dan Boyer well] in 1974 and 1975."[75] The applicant's conclusion appears to be misleading. According to dataset that was used to support the conclusion, data on many water quality parameters were not collected in 1974 or 1975.[76]

6. The applicant concluded that "[a]ccording to the USG DEIR/EIS, groundwater extraction from the basin since 1975 has ranged from approximately 500 to 850 afy, and there has been no change in water quality in the proposed water supply well. Because the well will provide water for the Project for approximately 10 months at a rate of approximately 40 afy, pumping at this rate is not expected to result in a change in water quality."[77]

   There appear to be several flaws with these particular conclusions:

   a. Whereas groundwater extraction in the 1970's appears to have been in the range indicated by the applicant, it appears to have been considerably less in recent years.[78] As a result, the USG DEIR considered the baseline to be the period from 1994 to 1998. Extraction during that time was < 500 afy.

   b. The USG DEIR indicates water quality data were unavailable from the proposed water supply well.[79] Therefore, the applicant does not appear to have the basis to suggest the USG DEIR reported no change in water quality.

   c. The Project may use water from the well for more than 10 months.

7. The applicant concluded that "[t]he aquifer penetrated by the well can support water demands for the Imperial Valley Solar Project during construction and the lifespan of its operations (as needed)."[80] It is unclear whether Mr. Boyer would be willing (or able) to provide the applicant with water for that length of time. The "Will Serve" letter signed by Dan Boyer commits to providing the applicant with a *temporary* water supply, which Mr. Boyer indicates is expected to last for 6 to 11 months.[81]

8. The applicant concluded that "[c]ontinuous pumping of the well at the rate specified in the CUP for a period of one, two or three years will have no significant impact on water levels in the area, as the ZOI is considerably less than the distance to the closest well, which is approximately 500 feet away."[82]

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[75] Supplement to AFC, Section 3, p. 6-1. Applicant's exhibit #32.
[76] *See* Table 1 in Supplement to AFC, Section 3. Applicant's exhibit #32.
[77] Supplement to AFC, Section 3, p. 6-1. Applicant's exhibit #32.
[78] US Gypsum DEIR, Table 3.3-4, provided in Supplement to AFC, Section 2. Applicant's exhibit #32.
[79] US Gypsum DEIR, Tables 3.3-3A, 3.3-3B, and 3.3-5, provided in Supplement to AFC, Section 2. Applicant's exhibit #32.
[80] Supplement to AFC, Section 3, p. 6-1. Applicant's exhibit #32.
[81] Supplement to AFC, Section 3, Appendix A. Applicant's exhibit #32.
[82] Supplement to AFC, Section 3, p. 6-1. Applicant's exhibit #32.

The applicant's conclusion appears to have several flaws:

a. The analysis used a porosity value of 0.2, which the applicant indicates is the default value. I do not have the expertise to evaluate whether a value of 0.2 is appropriate or not. However, the Final EIR for the US Gypsum expansion project reported the following: "[t]he effective porosity in the alluvium is uncertain. Estimates range from 8.3 percent to 30 percent… It should be noted that the estimate of velocity is inversely proportional to the estimate effective porosity. Based on the range of possible porosity values, velocity could range from 100 to 375 ft/yr, or 50 years per mile and 14 years per mile respectively."[83]

b. The analysis assumed a construction use of 36,000 gallons per day. However, the SA/DEIS indicates the Project would use an average of 45,000 gallons per day (during construction).

c. The analysis does not explain how aquifer thickness was derived.

I am sponsoring the following exhibits:

Exhibit 498-J	USEPA letter to USACE (5/12/10) re Public Notice (PN) SPL-2008-01244-MLM for the proposed Imperial Valley Solar Project, Tessera Solar North America, Imperial County, California
Exhibit 498-K	Travis Huxman, UA Biosphere 2 and B2 Earthscience, Associate Professor, Ecology and Evolutionary Biology, University of Arizon, Tucson, Arizona: Climate Change and the Sonoran Desert
Exhibit 498-L	CURE letter addressed to Christopher Meyer and Jim Stobaugh (5/28/09) re Biological Resource Survey Techniques for the Solar Two Project
Exhibit 498-M	Monthly Precipitation, EL Centro 2 SSW, California
Exhibit 498-N	EPA: Sole Source Aquifer Designations in EPA, Region 9
Exhibit 498-O	Ground-Water Resources, Ocotillo-Coyote Wells Basin, Calif.
Exhibit 498-P	U.S. Geological Survey Water-Resources Investigations 77-30: Digital-Model Evaluation of the Ground-Water Resources in the Ocotillo-Coyote Wells Basin, Imperial County, California

[83] US Gypsum Final EIR/EIS, p. 3.3-42.

STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the IMPERIAL VALLEY SOLAR PROJECT	Docket No. 08-AFC-5

REBUTTAL TESTIMONY OF DR. VERNON C. BLEICH ON BEHALF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY ON BIOLOGICAL RESOURCES FOR THE IMPERIAL VALLEY SOLAR PROJECT

May 17, 2010

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In the Applicant's supplemental and rebuttal biology testimony filed on May 10, 2010, Dr. Patrick Mock testified that:

> The CEC, USFWS, CDFG and BLM biologists are in agreement that the sighting of bighorn sheep on the site in spring of 2009 was an unusual occurrence and is unlikely to occur again. Therefore, it is not anticipated that the project will adversely affect the bighorn sheep.

Dr. Mock's opening testimony also claims that:

> "[B]ighorn sheep specialists" from the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), and Bureau of Land Management (BLM) are in agreement that the observation of 5 bighorn sheep on the project site in March 2009 was unusual and unexpected.

Notably, Dr. Mock fails to identify those "specialists" by name in his testimony. His claims are contradicted by the bighorn specialists that I have been in contact with from CDFG and USFWS. Among the individuals I have spoken with from CDFG (Mr. Steve Torres[1]; Mr. Randy Botta[2]) or from USFWS (Dr. Guy Wagner[3]), none questioned the potential value of the project site to bighorn sheep.

In fact, bighorn expert Steve Torres, CDFG, refuted Patrick Mock's statement that bighorn sheep are unlikely to occur on the Project site:

> I have not spoken with [Patrick Mock]. The quote is clearly taken out of context if a bighorn sheep (BHS) biologist did state this. We have been working very hard to learn more about the habitat use and distribution of sheep in the southernmost part of the Peninsular Ranges. As such, last Fall we collared several BHS with GPS receivers that were reported in the areas adjacent to I-8. Seeing BHS in this

[1] S. Torres, California Department of Fish and Game, personal communication on March 23, 2010.
[2] R. Botta, California Department of Fish and Game, personal communication on March 24, 2010.
[3] G. Wagner, U.S. Fish and Wildlife Service, during a conference call on April 1, 2010.

> area could be described as "unusual and unexpected" because: 1) we have not rigorously looked for sheep in this area; and 2) this may represent a range expansion back into historic habitat...similar to what we have found adjacent to (and South of I-8). As you know, BHS are wide-ranging terrestrial mammals that occur at low density relative to the areas that they use. So regardless of the quoted statements made, all BHS biologists recognize that sightings of BHS using a specific area are very significant.[4]

Thus, Mr. Steve Torres believes that the sighting of bighorn sheep on the Project site is significant and could represent range expansion into historic habitat. Obviously this is something that should be encouraged and could be critically important to the viability of the distinct population segment. Moreover, Mr. Torres indicates that the observation of sheep on the Project site may only be unusual and unexpected because agencies have not rigorously looked for sheep in this area.

Mr. Randy Botta, also from CDFG, remembers being contacted by URS Corporation on behalf of the Applicant. At that time Mr. Botta did indicate that the observation was unusual, but that was possibly because data were scarce due to staffing and funding limitations. Specifically, Mr Botta said:

> I was contacted by URS and asked if CDFG had any observation or telemetry location points for sheep in the project area. I responded that CDFG had no such observations (ground or from aerial survey) or telemetry location points due to past and on-going staffing and funding limitations. I believe the sighting is "unusual and unexpected" given CDFG's current limited knowledge of sheep distribution, movement and habitat use in the southern most sub-populations. I am not in agreement with the "Bighorn sheep specialists." If the general information and/or responses I provided to URS was used in concluding more than the above then the information was used out of context. Additionally, I did not participate in CDFG project review or

[4] See email from S. Torres, May 13, 2010, attached as an Exhibit to this rebuttal testimony.

comment preparation in any way and did not participate in any related site visits or meetings with project proponents or other agency staff.[5]

Although Dr. Mock's testimony implies that all the agencies have clearly decided that bighorn will not be adversely impacted by development of the Project, this is simply not true. In addition to the communications from the California Department of Fish and Game bighorn experts quoted above, the USFWS has also not concurred in the decision that the Project is not likely to adversely affect bighorn sheep. We have learned from speaking with Ms. Felicia Sirchia, primary project contact at USFWS, and Dr. Guy Wagner (a bighorn sheep expert at USFWS), and from an email communication with Felicia Sirchia on May 11, 2010, that USFWS has not yet concluded anything about the Project's potentially significant impacts on bighorn sheep as Dr. Mock would have you believe.[6] Both Dr. Wagner and Ms. Sirchia indicated that they did not inform the Applicant the observation of bighorn sheep on the Project site was not likely to occur again. It is not clear whom Dr. Mock was speaking with, but the top bighorn specialists at the USFWS and CDFG and the primary project contact at USFWS apparently did not make such statements. All of this is documented in attached copies of email correspondence.

I concur that the observation of bighorn sheep on the project site in March 2009 was unexpected, in part because no one was looking specifically

[5] See email from R. Botta, May 14, 2010, attached as an exhibit to this rebuttal testimony.
[6] See email from Felicia Sirchia, May 11, 2010, attached as an exhibit to this rebuttal testimony.

for evidence of bighorn sheep. I disagree strongly, however, with the conclusion of the Applicant that the observation should be dismissed as being insignificant. The Project site may represent part of an important movement corridor, or potential movement corridor, in a designated Recovery Area and, thus, any obstructions that would occur as a result of project implementation could have substantial impacts on the potential for movement by bighorn sheep through the area, and thereby compromise metapopulation function.

The recent observation of bighorn sheep on the Project site is encouraging in the context of increased utilization of such areas by those large, specialized mammals. In fact, the "transient" use of the project site by bighorn sheep, which was dismissed in the Staff Assessment as insignificant, could be essential to their recovery in the region. The bighorn sheep photographed on the project site were females or young, and female bighorn sheep are inherently conservative in their behavior and are slow to colonize vacant areas, so the presence of female bighorn sheep on the project site suggests those animals were moving from one area to another within the recovery area.

Although the Applicant dismisses the project site "as providing only marginal foraging habitat for the animals," it is my professional opinion that the bighorn sheep could have been at that location because of the presence of high quality forage. Unfortunately, the Applicant failed to analyze the significance of the potential nutritional benefits incurred by PBHS on the

project site and chose, simply, to dismiss the occurrence of bighorn sheep on site as "unusual and unexpected" rather than to acknowledge the potential importance of lower elevation habitats, such as that found on the project site, in terms of the nutritional benefits available to bighorn sheep. Failure to properly acknowledge the potential value of the project site as foraging habitat is inexplicable, because the project site is in a low-lying area with a number of significant desert washes, which are among the most productive habitats in the Sonoran Desert and support higher cover of vegetation and far greater plant biomass than surrounding upland areas.

I can only wonder if the failure to recognize the potential value of such sites reflects the Applicant's lack of familiarity with the biology of bighorn sheep in general and, specifically, with the ecology of bighorn sheep inhabiting desert environments. Such areas likely are not used on a year-round basis but they are, at times, critically important to bighorn sheep in terms of nutrient acquisition or movement among areas of more stereotypical bighorn sheep habitat. Moreover, it is not so much the amount of use an area receives, but the nutritional benefits accrued by bighorn sheep while utilizing such locations that is biologically meaningful; such use may be of short duration, and at only certain times of the year, but can be critically important to individual animals and, therefore, to persistence of populations.

It is my professional opinion that development of the Project will significantly impact the peninsular bighorn sheep recovery in the Project

area and that this impact must be analyzed and mitigated. Notably, California Department of Fish and Game bighorn specialist Randy Botta provided a concrete recommendation for mitigating the impacts to 6,000+ acres of land in the Project area:

> Based on your figure of the loss of 6,000 acres of foraging habitat I would recommend that an equal amount of habitat be protected in fee title and then transferred to CDFG or an appropriate agency such as state parks. It likely will be difficult to find that acreage in the southern portion of the range so replacement throughout the range would be required. Habitat to be purchased should first be approved by the wildlife agencies. Additionally, funding for a specified number of years (minimum of 5) should be allocated for telemetry monitoring (telemetry equipment and capture time) and survey (helicopter time) in and adjacent to the project area.[7]

The mitigation recommended by Mr. Botta should be seriously considered by the California Energy Commission in the subsequent analysis regarding currently unmitigated significant impacts to the bighorn sheep from Project development. I reserve the right to provide additional testimony on mitigation once this analysis is completed.

[7] See email from R. Botta , May 14, 2010, attached as an exhibit to this rebuttal testimony.

STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the IMPERIAL VALLEY SOLAR PROJECT	Docket No. 08-AFC-5

REBUTTAL TESTIMONY OF DR. CHRISTOPHER BOWLES and CHRISTOPHER CAMPBELL ON BEHALF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY ON SOIL AND WATER RESOURCES FOR THE IMPERIAL VALLEY SOLAR PROJECT

May 17, 2010

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1 INTRODUCTION

The following represents our rebuttal testimony to soil and water resource elements of the Applicant's opening and supplemental testimony. Given that a significant amount of new information was provided with the Applicant's supplemental testimony (e.g., Exhibit 32), we were unable to sufficiently review all the new information; the following represents our initial rebuttal testimony, especially with respect to groundwater issues pertaining to the newly identified water supply.

2 APPLICANT'S OPENING TESTIMONY

1. Exhibit 11 – Supplemental Cumulative Analysis

    a. In the Applicant's supplemental cumulative analysis, the soils cumulative analysis area is limited to the outward extent of the three primary State Soil Geographic (STATSGO) soil types that intersect at the project site (see figure in Attachment C to Exhibit 11).

    This interpretation of cumulative soil impacts is inadequate because the geographic scope is improperly limited by soil typing boundaries rather than the geographic scope defined by the Salton Sea.

    This interpretation of cumulative soil impacts also completely ignores the incremental downstream impacts of onsite soil erosion from the solar arrays, and other project features, to the degradation of onsite and offsite washes; Imperial Valley farmland; and water quality of the Imperial Valley canals and drains, the New River, and the Salton Sea.

    Finally, this interpretation of cumulative soil impacts completely ignores the previously mentioned downstream impacts in the broader geographic scope, which should take into account the effect that past, present, and future projects might have on the New River and the Salton Sea.

    Furthermore, it has also been demonstrated in our opening testimony that the soil loss calculations, lack of understanding of the environmental setting (which defines baseline conditions), and assumptions regarding Best Management Practices (BMP) effectiveness are inadequate, and as such, render the impact assessment and Drainage Erosion and Soil Control Plan (DESCP)/Storm Water Pollution Prevent Plan (SWPPP) inadequate.

    b. It is our understanding that specific elements and inferences in the water resources component of Exhibit 11 are superseded by more recent information and exhibits, namely, the U.S. Army Corps of Engineers' (USACE) preliminary determination of jurisdictional waters, the wash avoidance site plan (see Exhibit 34), and the interim (or potentially long-

term) use of local groundwater within the sole source Coyote Wells Valley Groundwater Basin (see Exhibit 32). Regardless, the water resources cumulative analysis area is limited to areas west of the Westside Main Canal that are tributary to and intersected by project infrastructure (see figure in Attachment C to Exhibit 11).

This interpretation of the cumulative water resource impact area is inadequate because:

a) The geographic scope is limited to the project infrastructure rather than the geographic scope of the Project area watershed that includes the Salton Sea.

b) It completely ignores the incremental downstream impacts of onsite increases in effective percent impervious cover (PIC) and subsequent increases in runoff peaks and volumes. The subsequent increases in runoff peaks and volumes are significant because they have the ability to increase flood hazards, impact the morphology of onsite and offsite washes, and convey runoff laden with sediments and soluble salts to the already impaired Imperial Valley Drains, the New River, and the Salton Sea.

c) It completely ignores the previously mentioned impacts in the broader geographic scope and any water resource impacts past, present, and future projects might have on the New River and the Salton Sea in aggregate. Furthermore, it has also been demonstrated in our opening testimony that the hydrology, hydraulic, and sediment transport modeling and calculations are inadequate, partially driven by the lack of understanding of the environmental setting (which defines baseline conditions) in the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) and Applicant's filings and oversimplification of underlying assumptions and techniques, rendering the impact assessment inadequate.

2. Matthew Moore (MM) – Water Resources

a. According to Question #5, as likely supported by Exhibit 18, MM concluded that the Seeley Waste Water Treatment Plant (SWWTP) would not impact the water quality (and salinity) of the New River and Salton Sea because a) the decrease in freshwater flows at the New River and the Salton Sea would be negligible at 0.15% and 0.05%, respectively, under maximum project deliveries, and b) these negligible decreases would be offset by the improved water quality of the effluent.

This analysis ignores the fact that the Salton Sea is significantly impaired regarding salinity, and any reductions in freshwater flows, incremental or cumulative, can have a significant impact on the salinity balance of the Salton Sea, which is presently more saline than the ocean. It is our understanding, based on the testimony and exhibits to date (i.e., Exhibit 18), that engineering calculations *have not been provided to substantiate this claim* that enhanced water quality and reduced salinity levels (or TDS content) in the SWWTP effluent (per the future upgrade) will successfully offset the reductions in freshwater (effluent) flows

to the Salton Sea. Until such calculations are provided, the Applicant's testimony provides only unsupported assumptions that there will be no salinity impacts to the Salton Sea as a result of the SWWTP diversion. Without evidence to the contrary, it appears that project diversions from the SWWTP pose a significant risk to the water quality of the Salton Sea.

b. According to Question #9, MM concluded that sedimentation and morphological impacts from the project would be mitigated such that the project would comply with all applicable LORS per implementation of the DESCP/SWPPP and compliance with relevant Conditions of Certification.

Based on our opening testimony, we have previously demonstrated that the referenced hydrologic, sedimentation, hydraulic, and sediment transport studies are inadequate to fully assess the onsite, offsite, and cumulative impacts of the project and subsequent benefits of proposed mitigation measures, to soil and water resources. Until such time that corrective and supplemental measures are taken to improve the adequacy of these studies, the project poses a significant impact to onsite and offsite resources.

3 APPLICANT'S SUPPLEMENTAL AND REBUTTAL TESTIMONY

1. Robert Scott (RS) – Water Resources

a. According to Question #3, RS concluded via Exhibit 32 that extraction of groundwater from the sole source aquifer "will have no significant impacts to the aquifer."

As referenced by Exhibit 11 (see page 12), it was previously stated that the Coyote Wells Valley Groundwater Basin was in an overdraft deficient status:

> *The proposed Project would obtain water from an off-site waterline and is not expected to use groundwater wells for construction, operation, and maintenance water supplies. This is because the Coyote Wells Valley Groundwater Basin is already in a water overdraft deficient status (CDWR 2004). However, in emergency situations, SES may use groundwater for operation and maintenance.*

While we recognize that the SWWTP upgrades could take some time to come online or the SWWTP could even be prevented from providing deliveries to the project (given the potential to significantly impact the salinity of the Salton Sea), thus resulting in project delays if an alternative source of water is not made available, we are of the opinion that Exhibit 32 was inadequate in quantifying the cumulative and potentially long-term impacts of groundwater diversions from the aquifer.

According to CEQA Guidelines, as reiterated on page 2.5-3 of Exhibit 32, a project would have a significant impact on hydrology if the project depleted groundwater supplies such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table. Given that the aquifer was designated as a sole source aquifer by the EPA in 1996 and is currently in an overdraft deficient status with static water levels declining on average 1 foot every five years (see page 2.5-2), it is difficult to fathom how this project would not further contribute to the cumulative groundwater deficit and lowering of the water table, which is not even acknowledged as a cumulative impact.

2. Exhibit 32 – Supplement to the AFC

   a. According to page 2.5-3, the average water demand during construction was stated to be 45,000 gpd or 50 afy, with a peak demand of 90,000 gpd, which is reduced to 33 afy during operations.

      If water deliveries from the groundwater supply for construction are limited to 40 afy, the project will suffer a water supply deficit of 10 afy or 20% per year. If construction spans 40 months or 3.33 years, the total deficit will be approximately 33.3 af. Assuming the project intends to store water in the two (2) 1-acre evaporation ponds, perhaps through water deliveries in the first year, the evaporation ponds would need to be at least 15 feet deep. In addition, the groundwater stored in the evaporation ponds would be subject to evaporation into the atmosphere. Mean evaporation from the evaporation ponds could be 111.4 in/yr[1,2,3] or 9.28 ft/yr or 0.31 in/day. As such, 56% of the stored groundwater could be lost to the atmosphere, thereby increasing the project's demand on groundwater resources. In our opinion, these details (i.e., logistics, scheduling, and evaporative losses of stored water) have not been adequately addressed in the impact analysis.

   b. According to page 2.5-4, "a drawdown analysis performed for this well indicates that pumping of the well at the prescribed rates will have no significant impact on water levels and water quality in the area, as the ZOI is considerably less than the distance to the closest well, approximately 500 feet away."

      While this test may demonstrate that the Zone of Influence (ZOI) is relatively small and that there should be no short-term impacts of pumping on adjacent wells, it does not address the long-term cumulative impacts that pumping may lower the water table since it has already been acknowledged that the basin is an in overdraft deficient state.

[1] Pan evaporation, used as a surrogate for evaporation from the project's evaporation ponds, was estimated by Grismer et al. (2002) as 111.2 in/day for El Centro and by the WRCC as 111.6 in/day for the Mojave Desert.
[2] Grismer, M.E., M. Orang, R. Snyder, and R. Matyac. 2002. Pan evaporation to reference evapotranspiration conversion methods. *Journal of Irrigation and Drainage Engineering* 128(3):180-184.
[3] Western Region Climate Center (WRCC) pan evaporation data was accessed on May 15, 2010 from the following website: http://www.wrcc.dri.edu/htmlfiles/westevap.final.html.

In our opinion, the Applicant has wholly omitted analysis of the cumulative long-term impacts to adjacent wells from long-term pumping.

c. Exhibit 32 includes Appendix C (United States Gypsum Draft EIR/EIS Hydrology and Water Quality Section) and Appendix D (Groundwater Evaluation Report).

   We have not had sufficient time to thoroughly review these items and we reserve the right to submit testimony on these exhibits at a later date.

3. Mike Fitzgerald (MF) – Biology

   a. According to Questions #4 and #5, the three mitigation measures proposed by Dr. Chang in Exhibit 30 (i.e., delete sediment basins, change culvert crossings to at-grade crossings, consider 5 foot scour in washes for solar dish structural design), with the exception of the at-grade road crossings, were implemented in the revised Plan of Development (POD) and the Clean Water Act 404B-1 Alternatives Analysis (which have not been made available for our review). The workaround to the at-grade road crossing at Wash G was a bottomless CON/SPAN or BEBO crossing.

      While we are in agreement to delete the sediment basins from the project and to use a bottomless clear span crossing over Wash G, we are not in agreement with all of Dr. Chang's findings per our opening testimony, which identified shortcomings in the sediment transport analysis that render the analysis inadequate. As such, significant sedimentation and morphological impacts to onsite and offsite resources still exist. We also question the qualifications of Ecosphere staff, predominately biologists, to assess the geomorphic merits of a sediment transport analysis.

   b. According to Questions #6 and #7, the California Rapid Assessment Method (CRAM) was applied at the project site at the suggestion of the USACE as an experimental test case in the application of CRAM to desert environments.

      Based on these responses and our understanding of the geomorphic components of CRAM, and as MF suggests, application of the CRAM results will be "speculative" until a CRAM module for desert washes and alluvial fans is developed. Until such time that a relevant CRAM module has been developed and thoroughly tested, which would likely require a reapplication of CRAM to the project site per a newly designed module, the geomorphic data and results should not be relied upon without confirmation by quantitative analyses.

   c. According to Questions #8 and #9, the proposed project was modified to avoid specific washes (see Exhibit 34), and per the Applicant's practicability analysis, was determined to be the Applicant's proposed LEDPA.

We would argue that the modified project is not the LEDPA. It is our understanding that Exhibit 34 is more-or-less a variation on the USACE's Drainage Avoidance #1 alternative, except that primary washes A, D, the lower end of E, F, and the lower end of G are no longer avoided. As such, per our opening testimony, the unmitigated hydrologic and geomorphic impacts we identified for Drainage Avoidance #1 alternative are transferable to the modified project. What is not clear, since we were not privy to the 404B-1 Alternatives Analysis or other published information, is if a detailed cost-logistics-technology analysis has even been performed. In order to understand the practicability of the modified project, this analysis and underlying assumptions need to be made available.

d. According to Question #10, Dr. Chang's analysis may be used to qualitatively assess the geomorphic impacts of the modified project per Exhibit 34.

   Per our opening testimony, which identified shortcomings and inadequacies in the sediment transport analysis (Exhibit 30), to which we can only assume will be used to make qualitative inferences about the impacts modified project and necessary mitigation measures, we are of the opinion that a quantitative sediment transport analysis must be performed, before any qualitative inferences can be made, per the corrective measures and suggestions we identified in order to provide a better understanding of project impacts to onsite and offsite resources.

We are sponsoring the following exhibit:

Exhibit 499-D	Coleman, MacRae and Stein, Effect of Increases in Peak Flows and Imperviousness on the Morphology of southern California Streams, April 2005.

STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the IMPERIAL VALLEY SOLAR PROJECT	Docket No. 08-AFC-5

TESTIMONY OF BRIDGET NASH-CHRABASCZ ON CULTURAL RESOURCES FOR THE IMPERIAL VALLEY SOLAR PROJECT

May 17, 2010

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Attorneys for the CALIFORNIA UNIONS FOR RELIABLE ENERGY

I, Bridget Nash-Chrabascz, declare as follows:

1. I have earned both my BA and MA in Anthropology and meet the qualifications as an archaeologist as set forth by the Secretary of the Interior.

2. I am presently employed by the Quechan Indian Tribe as the Historic Preservation Officer within the Historic Preservation Office. Prior to working for the Tribe I worked for a cultural resources management firm, Old Pueblo Archaeology, in Tucson, Arizona, and for the State of Indiana at the Indiana State Museum. A copy of my professional qualifications and experience is attached.

3. As the Tribe's Historic Preservation Officer, I work closely with the Tribe's Cultural Committee, as well as numerous elders and community members, and have gained valuable insight into the Tribal perspective in regards to the management of cultural resources. Through the course of my work I have had the opportunity to visit numerous sites within the Tribe's traditional land area, and have been taught first-hand how the Tribe's Creation story relates to certain landforms, as well as the archaeological sites visible on the ground, to form a larger cultural landscape. As defined by the National Park Service, a cultural landscape is "a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values."

4. The Quechan Tribe, who was here prior to the arrival of the Spaniards or Europeans, had several villages scattered throughout what is now Arizona and California. Prior to the creation of the reservation in 1884, the Quechan traditionally utilized lands as far east as Gila Bend, AZ, west to Octotillo, CA, south into Mexico and north to Blythe, CA and Quartzsite, AZ. The Colorado River corridor from just north of Laughlin, NV, into Mexico is also part of the Quechan's traditional land as it is integral to the Creation of the Tribe.

5. The cultural landscape of the Quechan consists of a myriad of natural and cultural features; intaglios, geoglyphs, petroglyphs, trails and pottery and lithic scatters are just a few of the types of physical remains visible today from the past activities of the Tribe. While each of these features is impressive in its own right, collectively they are part of a larger landscape that includes ceremonial, travel, habitation and battle site locations, as well as sacred places. Unlike archaeologists, who are often limited by project boundaries, the Tribe views all of the landforms, such as mountains, and archaeological sites as being interconnected.

6. The current standard operating procedure for archaeology maintains that archaeologists need to identify and evaluate cultural resources. Once cultural resources have been identified, it is necessary to evaluate them. Per the Secretary of Interior's Standards for Evaluation, evaluation "is the process of determining whether identified properties meet defined criteria of significance and therefore should be included in an inventory of historic properties determined to meet the criteria." Significant properties "possess

integrity of location, design, setting, materials, workmanship, feeling, and association" and also meet one or more of the four eligibility criteria: a) sites associated with significant events; b) sites associated with significant people; c) sites that embody a type, period, or method of construction, or represent a master's work, or possess high artistic values, or represent a significant, distinguishable entity; d) sites that have yielded, or may be likely to yield, information important in prehistory or history."

7. Establishing the boundaries of the identified cultural resources is part of the process as well. The National Park Service has established guidelines for selecting boundaries for archaeological sites and districts. "The selection of boundaries for archaeological sites and districts depends primarily on the scale and horizontal extent of the significant features." Often subsurface testing, surface observation and the observation of topographic features and land alterations aid in this decision. The National Park Service also notes that "absolute boundary definition is often not achievable, especially for archaeological properties."

8. Within the last few years, archaeologists have seen a shift within the paradigm occur. In 2008, at the Society for California Archaeology's annual conference several presentations included archaeologist and Tribal members discussing their partnerships. Later that year the Native American Land Conservancy held a seminar, Lifeways and Landforms Stewarding Sacred Lands. The Society for California Archaeology Native American Programs Committee circulated the White Papers for comments from Native Americans on how to improve the practice of archaeology in California. In 2009, the Arizona State Historic Preservation Office organized a Traditional Cultural Properties workshop. We are beginning to see more archaeologists reaching out to the Tribe's to partner in the identification and evaluation of the cultural resources.

9. Based on my knowledge of the archaeological process and my experience in the field, as well as my knowledge of the Quechan Tribe and an understanding of the tribal perspective in regards to cultural resources, here is my opinion:

    a. The current paradigm in which archaeologists in the Imperial Valley Solar Project identified, bound and evaluated cultural resources for their significance has not allowed for Tribal input.

    b. The area proposed for the Project area is rich in cultural resources. Damages to one or more sites within the project area affect all sites within the Project area, which in turn damage the landscape in which the sites in question are located as well as the other sites within the area (ie. the Yuha Desert). Cultural landscapes cannot be piecemealed and need to be considered in their entirety.

c. As defined by the National Park Service, a cultural landscape is "a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values." The Tribes cultural landscape contains not only the visible remains of activities located on the grounds' surface, or areas in which traditional plant or clay gathering occurred, but a spiritual component as well. The Tribe's Creation story tells the Creation of the Tribe and specifies numerous animals and their role within the story. The lizard, for example, lit the pyre for Kwikumats', cremation. As such, the Tribe is concerned about the impact the project will have on the flat-tail horned lizard.

d. The cultural significance of the project area was previously described in the discussion of the proposed Plaster City ACEC in the 1980 Draft California Desert Conservation Area Plan Alternatives and EIS. The proposed ACEC, which included the current project area, was described as having "8,320 acres of high sensitivity/significance and 26,680 acres of high to very high buried site potential that could be severely impacted. In addition, possibly 1,125 prehistoric sites and 2 National Register properties (including 8 linear miles of historically significant trails) also stand to be disturbed and/or destroyed." The cultural value of this landscape has been well known for years. The proposed solar project would significantly impact this cultural landscape.

e. As currently defined, the APE is the project area. The APE is too narrow as it fails to take into account the visual impacts to adjacent ceremonial sites and TCPs, like Coyote Mountain. The indirect impacts to sites such as this need to be considered. The cultural and ceremonial use of the landscape will be impaired when tens of thousands of solar pedestals are visible from these areas.

f. The analysis thus far has been heavily focused on archaeological resources. Given the concerns in regards to adjacent land areas and TCPs, an ethnographic study should be done to inform this process.

g. BLM has not engaged in government-to-government consultation with the Tribe regarding the impacts of this project on cultural resources. Nor has the Tribe received any of the reports that identify cultural resources within the Project Area. The Tribe has identified certain statements in the DEIS that may be inaccurate and that would benefit from consultation with the Tribe. However, due to the lack of consultation or the provision of cultural reports or maps, it is not possible to provide additional meaningful comments on this topic at this time.

h. The Programmatic Agreement developed by the BLM defers the formulation of mitigation to a time when the project alternative will have already been chosen and the project will be permitted. This deferral removes the option of rejecting the

project within the proposed project area based on what is learned in consultation with the Tribes

I am sponsoring the following exhibits:

Exhibit 498-Y	Quechan Indian Tribe Comments on Staff Assessment/Draft Environmental Impact Statement, May 17, 2010.
Exhibit 498-Z	Comment letters on Draft Programmatic Agreement for Imperial Valley Solar Project from consulting parties.

STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the **IMPERIAL VALLEY SOLAR PROJECT**	Docket No. 08-AFC-5

ADDITIONAL REBUTTAL TESTIMONY OF DR. VERNON BLEICH ON BEHALF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY ON BIOLOGICAL RESOURCES FOR THE IMPERIAL VALLEY SOLAR PROJECT

July 21, 2010

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I. Introduction

The Supplemental Staff Assessment for the Imperial Valley Solar Project (SSA) recognizes the potential for the project to impact foraging habitat for peninsular bighorn sheep (PBHS), and requires a formal Section 7 consultation with the U.S. Fish and Wildlife Service.[1] This is a positive departure from the Staff Assessment that concluded the project is not likely to adversely affect peninsular bighorn sheep. This change is due in part to biologists from the California Department of Fish and Game (CDFG) and Bureau of Land Management (BLM) concurring with my testimony that evidence was inadequate to prove that PBHS would not be impacted by the loss of foraging habitat.[2]

Unfortunately, the SSA also concludes that evidence that the project would disrupt a potential movement corridor for PBHS in the vicinity of the site is speculative, and is based on an absence of radiotelemetry data, "... that shows no evidence of long-distance movements of BHS (bighorn sheep) across the site."[3] It is my professional opinion that an absence of contemporary evidence confirming long-distance movements across the project site does nothing to denigrate the potential importance of the project site as part of a movement corridor used by bighorn sheep. Moreover, use of the area in the past cannot be known and, therefore, cannot simply be dismissed as having never occurred. Thus, the potential importance of project development to the ecology of PBHS in the vicinity of the project cannot simply be dismissed as unimportant to sheep today or for the recovery of the sheep in the future. Moreover, the presence of PBHS moving through the Project site[4] strongly suggests that the site functions as a movement corridor.

II. The SSA fails to acknowledge the potential for the project to impact long-distance movements by peninsular bighorn sheep

The SSA acknowledges that any potential movement through the Project site by PBHS will be impeded due to perimeter fencing around the project site, but concludes that bighorn sheep have not been documented to utilize the project site as a movement corridor.[5] Thus, Staff erroneously conclude that impacts to a movement corridor for BHS through the project site are speculative and considered "... to be less than significant level [sic]."[6] This conclusion is based, in part, on a lack of telemetry data or road-kills in the vicinity of the project site, as well as proximity of the project site to flat terrain and the Yuha desert.

The rationale for concluding that the project site and associated perimeter fencing will not impact bighorn sheep movement is flawed for several reasons. Movement corridors do not simply represent narrow corridors through which bighorn sheep and

[1] Imperial Valley Solar Project Supplemental Staff Assessment, pages ES-15 and ES-21, and others.
[2] Imperial Valley Solar Project Supplemental Staff Assessment, page ES-21.
[3] Imperial Valley Solar Project Supplemental Staff Assessment, page ES-21 and ES-30, and others.
[4] SES Solar Two LLC, Response to CURE Data Request 158, Set Two, 08-AFC-5.
[5] Imperial Valley Solar Project Supplemental Staff Assessment, page ES-30.
[6] Imperial Valley Solar Project Supplemental Staff Assessment, page ES-30.

other wildlife restrict their movements but, instead, are those intermountain areas that separate individual mountain ranges or portions of very large mountain ranges.[7] Without citing any support, the original SA concluded that the site "… does not provide any corridor to other habitat that would support Peninsular bighorn sheep [PBHS]."[8] As a result, the SA did not analyze the likely potential that PBHS observed on the project site were moving from permanently occupied areas to other permanently or seasonally occupied areas. Unfortunately, the SSA replicates that egregious error.[9] My testimony explains why Staff's conclusion that fencing of the project site would not significantly impact bighorn sheep in the absence of "road kills and telemetry data"[10] is based upon factual assumptions that are not supported by any evidence and are not likely to be correct. I believe that a correctly prepared Section 7 consultation will prove that the project site is located within a potential movement corridor that, if protected, could support the recovery of the endangered distinct population segment. The potentially significant impact to this corridor should be acknowledged and mitigated.

As noted in my previous testimony, PBHS occupy a number of areas surrounding the project site including (a) the area known as the Coyote Mountains immediately west of the project site and north of Interstate Highway 8, which supports a population of between 45 and 60 individuals;[11] (b) the Fish Creek Mountains immediately north of the project site that are occupied by PBHS on at least a seasonal basis;[12] [13] (c) the Sierra Juarez,[14] located immediately south of the Jacumba Mountains near the project site; (d) the Sierra Cucapa,[15] located immediately southeast of the project site; and (e) a portion of the Jacumba Mountains immediately south of Interstate 8.[16] PBHS are also known to use the Interstate Highway 8 "island" between the northbound (westbound) and southbound (eastbound) lanes of that heavily traveled route.[17] These mountainous areas have been designated as the Carrizo Mountains/Tierra Blanca Mountains/Coyote Mountains Recovery Area[18] (henceforth referred to as the CTCRA) in the Recovery Plan for PBHS in the Peninsular Ranges.[19] The project site may be part of an important movement corridor in this Recovery Area.

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[7] Bleich, V. C. 2005. Politics, promises, and illogical legislation confound wildlife conservation. Wildlife Society Bulletin 33:66-73.
[8] Imperial Valley Solar Project Staff Assessment, Page ES-21.
[9] Imperial Valley Solar Project Supplemental Staff Assessment, Page C-2-6.
[10] Imperial Valley Solar Project Supplemental Staff Assessment, page ES-30.
[11] R. Botta, California Department of Fish and Game, personal communication on 24 March 2010.
[12] R. Botta, California Department of Fish and Game, personal communication on 24 March 2010.
[13] M. Jorgensen, California Department of Parks and Recreation (retired), personal communication on 23 March 2010.
[14] DeForge, J. R., S. D. Ostermann, D. E. Toweill, P. E. Cyrog, and E. M. Barrett. 1993. Helicopter survey of peninsular bighorn sheep in northern Baja California. Desert Bighorn Council Transactions 37:24-28.
[15] DeForge, J. R., S. D. Ostermann, D. E. Toweill, P. E. Cyrog, and E. M. Barrett. 1993. Helicopter survey of peninsular bighorn sheep in northern Baja California. Desert Bighorn Council Transactions 37:24-28.
[16] R. Botta, California Department of Fish and Game, personal communication on 24 March 2010.
[17] R. Botta, California Department of Fish and Game, personal communication on 24 March 2010.
[18] U.S. Fish and Wildlife Service. 2000. Recovery plan for bighorn sheep in the peninsular ranges, California.
[19] Note that the Sierra Juarez and the Sierra Cucapa are not a part of the CTCRA.

As I stated in my opening testimony, the conclusions presented in the SA, that "[t]he site is several miles from designated critical habitat and does not provide any corridor to other habitat that would support Peninsular bighorn sheep" are not supported by the literature on this topic.[20] My testimony – that bighorn sheep moving between occupied areas, or even from occupied areas into unoccupied areas, are capable of moving long distances, and that such movements and, in fact, colonization events, may occur more frequently than previously recognized – has not been rebutted.[21] [22] [23] Moreover, my testimony on the value of intermountain areas like the project site to metapopulation function and, in turn, population persistence, was not rebutted in the SSA.[24] [25] [26] [27] Finally, the SSA did not rebut my opinion that it was significant that the sheep photographed on the Project site were female; because female bighorn sheep are inherently conservative in their behavior and are slow to colonize vacant areas,[28] the presence of female PBHS on the project site suggests those sheep were *moving* from one area to another within the CTCRA.

The SSA responds to my testimony regarding a potential movement corridor on the site by pointing to the absence of data supporting a movement corridor:

> "The potential for the loss of movement corridors through the site is speculative based on a lack of radiotelemetry data in the vicinity of the site that shows no evidence of long distance movements of BHS across the site (Guy Wagner, personal communication)."[29]

That sentence is difficult to interpret because of the double negative (absence of radiotelemetry data; no evidence). This wording makes it sound as though an absence of radiotelemetry data demonstrates that long distance movements of PBHS across the site has never occurred. Nevertheless, the basis for the conclusion is attributed to Dr. Wagner at the US Fish and Wildlife Service, but the conclusion may have been misconstrued. Dr. Wagner's statement appears to have been simply an acknowledgment of the potential for

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[20] Staff Assessment, SES Solar Two Project, Page ES-21.
[21] Bleich, V. C., J. D. Wehausen, and S. A. Holl. 1990. Desert-dwelling mountain sheep: conservation implications of a naturally fragmented distribution. Conservation Biology 4:383-390.
[22] Epps, C. W., J. D. Wehausen, V. C. Bleich, S. G. Torres, and J. S. Brashares. 2007. Optimizing dispersal and corridor models using landscape genetics. Journal of Applied Ecology 44:714-724.
[23] Epps, C. W., J. D. Wehausen, P. J. Palsboll, and D. R. McCullough. 2010. Using genetic tools to track desert bighorn sheep colonizations. Journal of Wildlife Management 74:522-531.
[24] Schwartz, O. A., V. C. Bleich, and S. A. Holl. 1986. Genetics and the conservation of mountain sheep *Ovis canadensis nelsoni*. Biological Conservation 37:179-190.
[25] Bleich, V. C., J. D. Wehausen, and S. A. Holl. 1990. Desert-dwelling mountain sheep: conservation implications of a naturally fragmented distribution. Conservation Biology 4:383-390.
[26] Bleich, V. C., J. D. Wehausen, R. R. Ramey II, and J. L. Rechel. 1996. Metapopulation theory and mountain sheep: implications for conservation. Pages 353-373 in D. R. McCullough (editor). Metapopulations and wildlife conservation. Island Press, Covelo, California.
[27] Bleich, V. C. 2005. Politics, promises, and illogical legislation confound wildlife conservation. Wildlife Society Bulletin 33:66-73.
[28] Bleich, V. C., J. D. Wehausen, R. R. Ramey II, and J. L. Rechel. 1996. Metapopulation theory and mountain sheep: implications for conservation. Pages 353-373 in D. R. McCullough (editor). Metapopulations and wildlife conservation. Island Press, Covelo, California.
[29] Imperial Valley Solar Project Supplemental Staff Assessment, Page C-2-6.

a movement corridor to be disrupted or blocked. I have been able to confirm the latter interpretation (i.e., that Dr. Wagner actually was acknowledging that use of the area for movement by bighorn sheep was, *in the absence of telemetry data, speculative*), but that he did not rule out concerns about the potential impacts of the project to connectivity within the CTCRA.[30] Moreover, Mr. Randy Botta, area biologist for the California Department of Fish and Game, reiterated his concern that the area could be important as a movement corridor, and that the absence of telemetry data should not negate concern over potential impacts.[31]

No additional information is included in the SSA to demonstrate that there is little potential for the area to serve as a movement corridor to substantiate the claim that the project site is not potentially important to the conservation of bighorn sheep in the CTCRA, or that project implementation would not impact the potential for movement through the area by bighorn sheep occupying more stereotypical bighorn sheep habitat. In fact, Dr. Wagner noted, after reading the conclusions of Epps et al.,[32] that the issues related to disruption of movement opportunities for bighorn sheep in the peninsular ranges led him to believe that there is the potential for more of an impact than was acknowledged in the SA.[33]

Reasons that telemetered bighorn sheep have not been detected on the project site are numerous and complex. Until October 2009, there have been very few bighorn sheep telemetered in the vicinity of the project site, yet the number of bighorn sheep that occur in that geographic area (specifically the Coyote Mountains) on at least a seasonal basis is estimated to be between 45 and 60;[34] hence, the probability of detecting movements through the project site by animals from the closest subpopulation of bighorn sheep has been very remote. As noted in my previous testimony, bighorn sheep are extremely conservative in their behavior and, although there is increasing evidence that those large mammals move more often and, perhaps, over longer distances than previously recognized,[35] [36] [37] [38] such movements would still be expected to occur infrequently at most. Additionally, the stimulus (or stimuli) for bighorn sheep to traverse large areas of

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[30] R. Botta, California Department of Fish and Game, personal communication on 16 July 2010.
[31] R. Botta, California Department of Fish and Game, personal communication on 16 July 2010.
[32] Epps, C. W., J. D. Wehausen, V. C. Bleich, S. G. Torres, and J. S. Brashares. 2007. Optimizing dispersal and corridor models using landscape genetics. Journal of Applied Ecology 44:714-724.
[33] Telephone conversation with Dr. Guy Wagner, USFWS, on 24 May 2010.
[34] Telephone conversation with Mr. Randy Botta, California Department of Fish and Game, 24 March 2010.
[35] Bleich, V. C., J. D. Wehausen, R. R. Ramey II, and J. L. Rechel. 1996. Metapopulation theory and mountain sheep: implications for conservation. Pages 353-373 in D. R. McCullough (editor). Metapopulations and wildlife conservation. Island Press, Covelo, California.
[36] Epps, C. W., J. D. Wehausen, V. C. Bleich, S. G. Torres, and J. S. Brashares. 2007. Optimizing dispersal and corridor models using landscape genetics. Journal of Applied Ecology 44:714-724.
[37] Epps, C. W., J. D. Wehausen, P. J. Palsbøll, and D. R. McCullough. 2005. Using genetic methods to describe and infer recent colonizations by desert bighorn sheep. Pp. 51-62 in Goerrissen, J., and J. M. Andre, editors. Symposium Proceedings for the Sweeney Granite Mountains Desert Research Center 1978-2003: A quarter century of research and teaching. University of California, Riverside.
[38] Epps, C. W., J. D. Wehausen, P. J. Palsboll, and D. R. McCullough. 2010. Using genetic tools to track desert bighorn sheep colonizations. Journal of Wildlife Management 74:522-531.

non-traditional habitat may not have been present since the deployment of additional telemetry collars (i.e., environmental conditions did not favor dispersal or movement). Moreover, the population likely had not yet recovered to a level to favor dispersal or movement through the project site. Finally, the absence of contemporary hard evidence (i.e., telemetry data) that PBHS have moved through the project site and that the Project would block a movement corridor does not negate the potential for sheep to have done so in the past, or to do so in the future.

In addition to the issues raised above, the logic behind the unsubstantiated conclusion that the project site is not part of a movement corridor for bighorn sheep in the CTCRA is flawed. Bighorn sheep reported on the project site during March, 2009 were described as moving and "... following the wash in a northwest to southeast direction" and a conclusion was reached that fencing of the project site "... will likely preclude *the apparent transitory use of the proposed developed portions of the site by PBHS* [peninsular bighorn sheep]."[39]

It is important to note that the presence of bighorn sheep on the project site on 25 March 2009 was noted in the SA as a "transitory" movement,[40] a description that was further emphasized by the Project Applicant in their conclusion that, "*Use of the site is likely to be transitory*."[41] Such transitory movements across, or through, non-stereotypical bighorn sheep habitat that consists largely of desert flats [and associated washes] are necessary to maintain connectivity among more typical areas occupied by bighorn sheep,[42] and the value of intermountain areas (like the site on which the project is proposed to be built) to metapopulation function and, in turn, metapopulation persistence, has been repeatedly emphasized in the literature.[43,44,45,46] Further, as mentioned, the PBHS photographed on the project site were female, and female bighorn sheep are inherently conservative in their behavior and are slow to colonize vacant areas,[47] so the presence of female PBHS on the project site suggests those sheep were moving from one area to another within the CTCRA. Bighorn sheep sign was again observed near the project site on 10 January 2010,[48] providing additional evidence that the area is traversed

[39] SES Solar Two LLC, Response to CURE Data Request 158, Set Two, 08-AFC-5; *emphasis added*.
[40] SES Solar Two LLC, Response to CURE Data Request 158, Set Two, 08-AFC-5.
[41] SES Solar Two LLC, Response to CURE Data Request 143, Set One, 08-AFC-5; *emphasis added*.
[42] Bleich, V. C. 2005. Politics, promises, and illogical legislation confound wildlife conservation. Wildlife Society Bulletin 33:66-73.
[43] Schwartz, O. A., V. C. Bleich, and S. A. Holl. 1986. Genetics and the conservation of mountain sheep *Ovis canadensis nelsoni*. Biological Conservation 37:179-190.
[44] Bleich, V. C., J. D. Wehausen, and S. A. Holl. 1990. Desert-dwelling mountain sheep: conservation implications of a naturally fragmented distribution. Conservation Biology 4:383-390.
[45] Bleich, V. C., J. D. Wehausen, R. R. Ramey II, and J. L. Rechel. 1996. Metapopulation theory and mountain sheep: implications for conservation. Pages 353-373 in D. R. McCullough (editor). Metapopulations and wildlife conservation. Island Press, Covelo, California.
[46] Bleich, V. C. 2005. Politics, promises, and illogical legislation confound wildlife conservation. Wildlife Society Bulletin 33:66-73.
[47] Bleich, V. C., J. D. Wehausen, R. R. Ramey II, and J. L. Rechel. 1996. Metapopulation theory and mountain sheep: implications for conservation. Pages 353-373 in D. R. McCullough (editor). Metapopulations and wildlife conservation. Island Press, Covelo, California.
[48] Imperial Valley Solar Project Supplemental Staff Assessment, Page C-2-123.

by bighorn sheep that may be moving through the project site and contributing to metapopulation function within the CTCRA. Thus, the project site provides a potentially important source of forage for bighorn sheep,[49] and movement through the area may be more frequent than acknowledged in the SSA.

It is also important to emphasize that maintenance of genetic diversity within subpopulations that comprise metapopulations of bighorn sheep occurs as a result of *transitory movements*, and that the rate of gene flow necessary to preclude declines in genetic diversity is exceedingly low.[50] Moreover, *transitory movements* from occupied stereotypical bighorn sheep habitat to areas of unoccupied, but stereotypical, bighorn sheep habitat are necessary for colonization of unoccupied habitat to occur,[51] [52] and such movements have resulted in a number of recent colonization events in California.[53] [54] These events are important to the recovery of this endangered distinct population segment. Or in the inverse, without these events, this endangered distinct population segment may not recover.

Metapopulation persistence is a function of colonization and extinction processes,[55] both of which occur as a result of multiple factors. Metapopulation persistence is dependent upon the colonization rate being greater than the extinction rate among subpopulations comprising the metapopulation,[56] as well as the number of habitat patches that are available for colonization.[57] Thus, fencing of the project site has ramifications for metapopulation function because of its potential to disrupt opportunities for "*transitory*"[58] [59] use of the project site by bighorn sheep within the CTCRA. This potential substantiates the necessity of a formal Section 7 consultation with the U.S. Fish and Wildlife Service, rather than simple dismissal of the potential for impacts to occur based on the spurious arguments that radiotelemetered bighorn sheep have not been detected moving through the project site and no road-killed bighorn sheep have been

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[49] Imperial Valley Solar Project Supplemental Staff Assessment, pages ES-15 and ES-21, and others.
[50] Schwartz, O. A., V. C. Bleich, and S. A. Holl. 1986. Genetics and the conservation of mountain sheep *Ovis canadensis nelsoni*. Biological Conservation 37:179-190.
[51] Bleich, V. C., J. D. Wehausen, and S. A. Holl. 1990. Desert-dwelling mountain sheep: conservation implications of a naturally fragmented distribution. Conservation Biology 4:383-390.
[52] Bleich, V. C., J. D. Wehausen, R. R. Ramey II, and J. L. Rechel. 1996. Metapopulation theory and mountain sheep: implications for conservation. Pages 353-373 in D. R. McCullough (editor). Metapopulations and wildlife conservation. Island Press, Covelo, California.
[53] Epps, C. W., J. D. Wehausen, P. J. Palsbøll, and D. R. McCullough. 2005. Using genetic methods to describe and infer recent colonizations by desert bighorn sheep. Pp. 51-62 in Goerrissen, J., and J. M. Andre, editors. Symposium Proceedings for the Sweeney Granite Mountains Desert Research Center 1978-2003: A quarter century of research and teaching. University of California, Riverside.
[54] Epps, C. W., J. D. Wehausen, P. J. Palsboll, and D. R. McCullough. 2010. Using genetic tools to track desert bighorn sheep colonizations. Journal of Wildlife Management 74:522-531.
[55] Hanski, I. 1989. Metapopulaton dynamics: does it help to have more of the same? Trends in Ecology and Evolution 4(4):113-114.
[56] Hanski, I., and M. Gilpin. 1991. Metapopulation dynamics: brief history and conceptual domain. Biological Journal of the Linnean Society 42:3-16.
[57] Hanski, I. 1989. Metapopulaton dynamics: does it help to have more of the same? Trends in Ecology and Evolution 4(4):113-114.
[58] SES Solar Two LLC, Response to CURE Data Request 158, Set Two, 08-AFC-5; *emphasis added*.
[59] SES Solar Two LLC, Response to CURE Data Request 143, Set One, 08-AFC-5; *emphasis added*.

recovered in the vicinity of the project site.[60] During a recent conversation, a representative from the California Department of Fish and Game reiterated his opinion to me that a formal Section 7 consultation regarding the potential for the proposed project to disrupt connectivity would be appropriate and should occur.[61] In the absence of such consultation, it is my contention that the potential for connectivity to be disrupted by the proposed project will not be fully assessed, and project implementation would occur in the absence of appropriate mitigation.

In the absence of certainty that project implementation will not disrupt connectivity among subpopulations that comprise the metapopulation of bighorn sheep in the CTCRA and nearby areas, thereby impacting metapopulation function and, potentially, metapopulation persistence and slowing the recover effort for this endangered population segment of bighorn sheep, it is always better to err on the conservative side of such issues. Rigorous application of the precautionary principle is warranted in this situation: in the absence of scientific consensus that the proposed action is harmful, the burden of proof that it is *not* harmful falls on those taking the action.[62] Thus, application of the precautionary principle dictates, at a minimum, that a formal Section 7 consultation is necessary before the full impacts of the proposed project can be fully evaluated.

III. Failure to adequately mitigate for project impacts to connectivity

As emphasized above, the SSA has inadequately considered the development of the project in terms of its potential to impact connectivity within the CTCRA. By relying on an absence of movement data[63] through the project site by bighorn sheep, Staff has erroneously concluded that bighorn sheep do not use the site for a movement corridor and would not do so in the future. Therefore, Staff does not consider mitigation for this impact to be necessary.

As explained in Section II, above, there have been very few telemetry collars deployed on bighorn sheep until recently and, even now, only a small proportion of the total number of bighorn sheep inhabiting the CTCRA are marked. Moreover, no bighorn sheep are marked south of the international border, and bighorn sheep are as capable of moving northward toward to the project site from the Sierra Juarez or the Sierra Cucapa as they are of moving northward from the Jacumba Mountains, eastward from the Coyote Mountains, or southward from the Fish Creek Mountains. There is an almost zero likelihood of detecting movements among uncollared bighorn sheep, and the frequency of movement by collared bighorn sheep is exceedingly low, but consistent with the conservative behavior of those ungulates.[64]

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[60] Imperial Valley Solar Project Supplemental Staff Assessment, page ES-30.
[61] R. Botta, California Department of Fish and Game, personal communication on 16 July 2010.
[62] http://en.wikipedia.org/wiki/Precautionary_principle.
[63] Imperial Valley Solar Project Supplemental Staff Assessment, Page C.2-72.
[64] Bleich, V. C., J. D. Wehausen, R. R. Ramey II, and J. L. Rechel. 1996. Metapopulation theory and mountain sheep: implications for conservation. Pages 353-373 in D. R. McCullough (editor). Metapopulations and wildlife conservation. Island Press, Covelo, California.

To argue that movement is unlikely because of the failure to detect movements to date is clearly inappropriate, and to ignore the potential importance of such movements in the maintenance of metapopulation dynamics[65] [66] is unfortunate. Only very low rates of movement are necessary to maintain connectivity, and Staff unfortunately has failed to acknowledge the significance of the potential impact of the project to connectivity and, as a result, to metapopulation function, persistence, and recovery efforts for bighorn sheep.

Mitigation measures described in Condition of Certification BIO-8 (Impact Avoidance and Minimization Measures) that involve gating and fencing to safeguard bighorn sheep from wandering onto the project site and potentially being injured only exacerbate the potential impacts to connectivity. To compensate for these unrecognized impacts, the project applicant must take action to ensure that connectivity in portions of the peninsular ranges is not similarly decreased.

I am not convinced that lands acquired for FTHL, burrowing owl, kit fox, and badger mitigation in BIO-10 will be appropriate for compensating for impacts to sheep foraging habitat. Suitable mitigation for project development would include the acquisition of a similar number of acres (i.e., mitigation on an acre-for-acre basis) currently in private ownership elsewhere in the peninsular ranges and turning that acreage over to the appropriate land management agency to ensure that additional impacts to connectivity do not occur. The California Department of Parks and Recreation (Anza-Borrego Desert State Park) and the California Department of Fish and Game have developed lists of lands in private ownership that are necessary to acquire to more fully protect habitat for bighorn sheep in the southern peninsular ranges,[67] [68]and both agencies should be consulted to ensure that any mitigation that is forthcoming as a result of this project is appropriate and meaningful. Purchase of land to compensate for any impacts to potential movement corridors should be considered separately, and should be acquired in areas known to be used by bighorn sheep.

[65] Schwartz, O. A., V. C. Bleich, and S. A. Holl. 1986. Genetics and the conservation of mountain sheep *Ovis canadensis nelsoni*. Biological Conservation 37:179-190.
[66] Hanski, I., and M. Gilpin. 1991. Metapopulation dynamics: brief history and conceptual domain. Biological Journal of the Linnean Society 42:3-16.
[67] R. Botta, California Department of Fish and Game, personal communication on 24 March 2010.
[68] M. Jorgensen, California Department of Parks and Recreation (retired), personal communication on 23 March 2010.

STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the IMPERIAL VALLEY SOLAR PROJECT	Docket No. 08-AFC-5

ADDITIONAL REBUTTAL TESTIMONY OF DR. CHRISTOPHER BOWLES and CHRISTOPHER CAMPBELL ON BEHALF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY ON SOIL AND WATER RESOURCES FOR THE IMPERIAL VALLEY SOLAR PROJECT

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INTRODUCTION

The following additional rebuttal testimony is in response to the Supplemental Staff Assessment (SSA) prepared by CEC Staff (July 7, 2010) and Additional Opening Testimony prepared by the Applicant (July 13, 2010). In addition to reviewing these documents and their attachments, the independent groundwater model review (Todd, 2007a) and water supply assessment (Todd, 2007b) developed for the US Gypsum Draft EIR/EIS were also reviewed since they were referenced in the SSA.

RESPONSE TO CEC'S SUPPLEMENTAL STAFF ASSESSMENT

Modifications to the Staff Assessment (SA) via the SSA regarding soil and water resources are predominately focused on the Dan Boyer groundwater supply for the project. The SSA fails to address a majority of our Opening and Rebuttal testimony pertaining to the Soil and Water issues we raised. As such, our comments on the SSA are focused on aspects of the groundwater supply.

WATER DEMAND VERSUS WATER SUPPLY

COCs Soil&Water-2 and Soil&Water-9 specifies that extractions from the Dan Boyer well for project purposes will be limited to 34 AFY, leaving the remaining 6 AFY of the permitted 40 AFY for residential users. There are three main unaddressed signfiicant impacts associated with the water demand exceeding water supply, as discussed below.

First, the SSA states that the construction phase requires 51.1 AFY on average (or 166 AF total) based on 45,000 gpd for dust control and 90,000 gpd for 15 peak construction days during a 39 month construction window. Clearly, there is an average deficiency of 17.1 AFY of water supply if only 34 AFY is allowed. However, the SSA only suggests that to meet the demand that additional water come from another source, the Dan Boyer permit limit be modified, or the construction schedule be modified. There is no evidence in the record that any of these alternative scenarios are feasible. Neither Staff nor the Applicant has proffered a new source of groundwater. The Dan Boyer permit is governed by the County and the County's comments on the SA "strongly recommended the CEC take into account the on-site water needs for the Westwind's parcel and historical residential users in its permitting of the IVSP to use this off-site water source."[1] More importantly, it is unclear where the construction phase water use values in the SA/DEIS and SSA of 45,000 gpd and 90,000 gpd originated. We were unable to find these numbers in any of the Soil and Water reference materials submitted by SES. Based on SES (2008) Application for Certification (AFC), dust control requires 11,500 gpd and construction requires 26,000 gpd for average conditions. However, the values of 11,500 gpd and 26,000 gpd grossly underestimate average water use conditions based on independent calculations made from Table 3-6 in the AFC (SES, 2008), which are closer to 77,000 gpd for dust control and 43,500 gpd for construction

[1] Imperial County Planning and Development Services, Jim Minnick to California Energy Commission, Christopher Meyer, May 27, 2010, Response to "Imperial Valley Solar Project (IVSP)".

over the 39 month construction window. Based on these calculations, a total of 439 AF of water is required, which is a 165% greater than the construction demand stated in the SA/DEIS and SSA at 166 AF.

Based on the AFC (SES, 2008) for peak construction conditions, dust control requires 223,000 gpd and construction requires 353,000 gpd, which matches the water balance flow diagram. Based on independent calculations made from Table 3-6 in the AFC (SES, 2008), we were able to confirm these monthly peak demand values (unlike the average daily demand values).

Furthermore, the monthly calculations demonstrate that 52% of the water demand would occur in the first 12 months, 40% would occur in the next 12 months, 8% would occur in the final 15 months. If this is a reasonable approximation for the construction phase water demand, and assuming that the total demand is 166 AF (even though it has been independently calculated to be incorrect), then 86 AF would be needed in the first 12 months, which would equate to a deficiency of 52 AF with the Dan Boyer well extractions limited to 34 AFY. However, the calculated demand in the first 12 months is closer to 228 AF, which would result in a severe deficiency. It is also noted that the water demand in the first 12 months at 228 AF is very close to the maximum diversion rate of 200,000 gpd (or 224 AFY) from the Seeley Wastewater Treatment Facility. It is also essential to note that there are pumping restrictions on Dan Boyer at 41,775 gpd and 250,650 gallons per week (or 6 days pumping and 1 day no pumping), so front loading the pumping to meet a peak demand is not possible. These type of restrictions need to be adequately integrated into the water budget calculations.

Second, operations require 32.7 AFY of water supply based on average annual usage. However, there are uncertainties associated with these calculations. Soil & Water Table 3 and SSA statements indicate an increase in the required water demand above 34 AFY, summarized as follows:

1. **Mirror Washing** – it was confirmed in Table 3 calculations that Staff assumed that there are 8 normal washings (at 14 gals/solar unit) and 1 scrub washing (at 42 gals/solar unit) for a total of 9 washings annually or 14.2 AFY. However, there are several instances in the SA/DEIS, SSA, and the Applicant's Additional Opening Testimony that would suggest that washings occur once per month for a total of 12 washings per year with possibly 8 normal washings and 4 scrub washings. If this is the case, then mirror washing would equate to 25.8 AFY and require an additional 10.3 AFY above the 34 AFY limit. In the event that only 11 normal washings and 1 scrub washing are required, then mirror washing would equate to 18.0 AFY and require an additional 2.6 AFY above the 34 AFY limit. If mirror washing is to occur in practice once per month (or more frequently), then these calculations demonstrate that there will be an operational deficiency in addition to the construction deficiency.
2. **Water Treatment** – it is unclear whether the annual calculations account for some percentage of days requiring the maximum amount of water. If not, then there should be an allowance made and the calculations should be updated.
3. **Potable Water** – the annual calculations were confirmed at 5.4 AFY to include a 20% contingency for 188 workers working 5 days per week or 261 days per year. However, the dust control calculations assume 365 days per year. If the operations schedule includes workers for

more than 5 days per week, this would equate up to 7.6 AFY and require an additional 0.9 AFY above the 34 AFY limit.

4. **Dust Control** – the annual calculations were confirmed at 5.6 AFY for 5000 gpd for 365 days per year. However, the maximum use of water for dust control is double the daily rate on any given number of days whereby the Applicant would need to comply with COC WorkerSafety-8 for enhanced dust control. Reasonably assuming 20% of days require enhanced dust control, this would equate to 6.7 AFY and leave a spare 0.2 AFY below the 34 AFY limit.

Considered in combination, we have calculated, based on information provided in the SSA, that there could be an additional need for 13.6 AFY above the stated 34 AFY limit provided by the SSA. Since the SSA assumes operations will be supplied by the Dan Boyer groundwater well, additional backup calculations should be provided to demonstrate that operational water demands will not exceed the 34 AFY limit or exceed daily and weekly pumping limits. In the event that demand will exceed supply, it has been stated in the SSA that the Applicant will suspend mirror washing. Suspension of mirror washing will not solve water deficiencies that arise from construction water needs. Moreover, it is unclear whether any calculations were performed to assess the percent loss of power generation due to dirty mirrors. Efficiency losses as a result of dirty mirrors should be analyzed by Staff since it appears that operational water shortages could be chronic.

Third, the SSA Air Quality section assumes that power generation will occur during the construction window. Such an "overlapping" condition was omitted from the water use calculations. If power generation (or operational) conditions occur jointly with the construction phase, then water budget calculations should take this into consideration as this will amplify the monthly water demand resulting in an even greater deficiency.

In summary, we concur with the Staff's overall water supply assessment in the SSA that the water supplies are not sufficient to meet the demands of the project:

1. Construction demands will exceed supply. Operational demands may exceed supply. Joint demand, if the schedule permits, will exceed supply.
2. Groundwater extractions exacerbate overdraft, which is a significant impact.
3. No backup or supplemental water supply has been firmly identified to help meet construction and operational demands. The extent of the SWWTF operational upgrades and the magnitude of the increase in recycled water supply is a substantial unknown.
4. The Dan Boyer Water Company has furnished a "will serve" letter stating that it will temporarily provide well water up to 11 months. As such, the reliability of the Dan Boyer groundwater supply is questionable beyond the first year of construction.

WELL INTERFERENCE FROM THE DAN BOYER WELL

Staff came to the conclusion in the SSA, when using typical or average well installation water supply characteristics, that groundwater extractions from the Dan Boyer well over the 40-year operational life of the solar farm would be less than significant on the groundwater level drawdown (and hence yield) in neighboring wells. There are two unmitigated significant direct and cumulative impacts that the SSA did not identify that are outlined below:

1. Staff used average well water supply characteristics, simplifying their well interference analysis, which assumed 15 feet of water above the well screens. However, 2 out of the 10 neighboring wells only have 5 feet of water above the well screens. If the groundwater level drops at an average rate of 0.21 feet/year or 8.4 feet in 40 years, then groundwater extractions from the Dan Boyer well could exacerbate yield conditions at those 2 wells as water levels drop below the top of the well screens, depending on location of the pumps relative to top of the well screens. In Staff's calculations, it was assumed that the pumps were near the top of the well screens. It is therefore recommended that such calculations rely upon measured data when available. Moreover, there is an unmitigated significant impact to nearby well users.
2. Staff did not consider the cumulative impact of scenarios when US Gypsum and other industrial / commercial wells are extracting water at the same time as the Dan Boyer well. Impacts to the neighboring wells (and the Dan Boyer well) could be a significant unmitigated impact and should be investigated using measured well water supply characteristics. Staff also did not consider water use from the proposed Wind Zero project as reasonably foreseeable and did not include this Project in the Staff's cumulative groundwater impact analysis. However, the Wind Zero project is being considered by the County now for permitting.

GROUNDWATER UPFLUX FROM THE DAN BOYER WELL

Staff came to the conclusion in the SSA that the estimated upflux volume is only 0.4% of the volume of the minimum affected aquifer volume (as determined from the well interference analysis using WinFlow), and as such, was insignificant. There are two (2) potential issues with this analysis:

1. Staff only considered the relative quantity or volume of water introduced into the upper alluvial aquifer from the underlying Palm Springs / Imperial aquifer and not the quality of the water and its potential impact on the alluvial aquifer. Staff estimated the upflux volume over the construction and operational life of the solar farm to be 145 AF as derived from relationships in Todd (2007a). The average percent change in quality or Total Dissolved Solids (TDS) concentration in the minimum affected aquifer volume is close to 4.5% (based on the weighted average of 38355 AF at 300 mg/L plus 145 AF at 4000 mg/L vs. 38500 AF at 300 mg/L), and thus the SSA failed to analyze a potentially significant impact to water quality in the aquifer.
2. Staff did not consider the cumulative upflux impacts if US Gypsum and other industrial / commercial wells are extracting water at the same time as the Dan Boyer well in the same

general vicinity. The percent increase in TDS concentration will be greater within the same minimum affected area, and higher TDS upflux concentrations will be realized at the bottom of the alluvial aquifer in the vicinity of the well bottoms. This cumulative impact is significant and unmitigated.

SEELEY WASTEWATER TREATMENT FACILITY UPGRADES

It has been stated in the SSA that the Applicant is now proposing to fund the improvements to the Seeley Wastewater Treatment Facility (SWWTF). However, the SWWTF upgrade is uncertain, the MND that was prepared was not adopted by the Seeley County Water District, and as such, the upgrade still needs to go through more detailed environmental review to assess potential impacts to wetland and riparian habitats and water quality in the New River and Salton Sea. In the event that diversions from an upgraded SWWTF cannot be provided to the project due to the severity of impacts, and in consideration of potential water supply deficiencies noted above with the Dan Boyer groundwater well, there is no reliable construction and operations primary or back-up water supply for the Project.

GROUNDWATER RECOMMENDATIONS

Todd (2007a) has provided an independent review of the Bookman-Edmonston (2004) conceptual hydrogeologic numerical model developed for the Draft EIR/EIS for the US Gypsum Expansion / Modernization Project using MODFLOW. Despite the review highlighting uncertainties with the model due to uncertainties associated with subsurface characterization in a large aquifer with limited data outside the cluster of wells in and around Ocotillo, the review indicates that the model does have value in assessing the relative impacts of proposed project (and cumulative project) pumping on groundwater levels and neighboring wells within the Ocotillo / Coyote Wells Groundwater Basin. As such, it is recommended that the MODFLOW model be used (rather than WinFlow3.1) to assess well interference using measured well water supply characteristics (not averages) and that solute transport capabilities be added to the model to assess upflux from the high TDS Palm Springs / Imperial aquifer into the overlying low TDS alluvial aquifer. We concur with recommendations by Todd (2007a) to further refine the conceptual hydrogeologic model through sensitivity testing and additional calibration. Failure to use the best available information and science can lead to a simplification in project understanding and misrepresentation of potential project impacts, which can be significant and detrimental to the environment and beneficial uses.

SEDIMENT BASINS

On page C.7-29 of the SSA, the proposed project description still includes sediments basins. Per the Applicant's revised POD, the Applicant proposed to remove the sediment basins from the project. It is not clear whether the SSA would require that the sediment basins remain. If the sediment basins remain, there would be significant impacts as discussed in our prior testimony.

RESPONSE TO APPLICANT'S ADDITIONAL OPENING TESTIMONY

Our comments on the Applicant's additional opening testimony come specifically in response to this statement in Section 4.2.2 of the 404(b)(1) Alternatives Analysis (AA) by Ecosphere (2010):

> *Chang's sediment modeling study (2010a) and subsequent testimony submitted to the CEC showed that the project will not change hydrology, sediment flow or delivery towards areas downstream from the project site, or change stream morphology on or off site.*

as well as this statement in Section 4.2.3 of the AA:

> *Chang's sediment modeling study (2010a) showed that with the sediment basins removed from the site plan, that the project will not change sediment flow or delivery towards areas downstream from the project site. Further, as the project will not change flow or sediment flow to offsite areas, there should be no impacts to offsite fluvial morphology.*

HYDROLOGY

It has not been demonstrated by the Applicant that the project will not increase local runoff. Chang's expert review of the Stantec and RMT hydrologic studies nor subsequent revisions to those studies have not demonstrated that the project will not result in hydrologic impacts. Again, the Applicant has simply assumed that there will be no project-induced hydrologic impacts. However, this assumption has not been quantified by any calculations demonstrating or proving that this is the case. Soil and vegetation disturbance followed by subsequent soil compaction and application of soil binders (or tackifiers) can reduce the surface storage and infiltration capacity of the disturbed soils, resulting in increases in local surface runoff. These increases in local runoff have both onsite and offsite impacts, which have been highlighted in our previous testimony.

SOIL EROSION

It has not been demonstrated by the Applicant that the project will not increase sediment delivery to the washes from the disturbed solar array fields. Again, the Applicant has assumed that there will be no project-induced soil erosion by water impacts for the solar array fields because the DESCP and SWPPP would address such concerns. However, this assumption has not been quantified by accurate calculations. We have previously demonstrated that the soil loss calculations were severely flawed and that without additional analysis and mitigation the project will pose significant unmitigated impacts to onsite and offsite waters of the US. Consequently, project-induced soil erosion by water impacts could result through increased sediment delivery to the washes via rill and gully erosion followed by onsite

impacts to the washes, as well as offsite WQ impacts, all of which has been highlighted in our previous testimony.

While operational soil erosion impacts may have been reduced in Alternative #3 (at the expense of increased temporary construction impacts) through the proposed construction of narrower maintenance roads and removal of spur roads to individual SunCatchers, the impacts of the project on soil erosion have not been fully addressed. For example, it is proposed that tackifier be applied to the roads to maintain the integrity of the roads. While it is mentioned that the roads will be driven on at least 13 times per year (i.e., 12 for mirror washing, 1 for annual maintenance, plus likely back tracking), the tackifier application specifications (e.g., basic surface treatment vs. heavy duty road treatment), reapplication rates, environmental degradation/accumulation rates, and infiltration impedance (and subsequent rill and gully erosion impacts) have not been quantified or qualified. More so, the severely flawed soil loss calculations have not been updated to reflect a more accurate understanding of the project setting and potential project impacts. Again, it is assumed by the Applicant that all soil erosion concerns will be adequately addressed in the DESCP and SWPPP. This assumption is unwarranted and, without additional mitigation and analysis, this is a significant unmitigated impact.

SEDIMENT TRANSPORT

It has not been demonstrated by the Applicant that the project will not impact wash morphology and subsequent export of sediments offsite. The Applicant has identified Alternative #3 in the amended 404(b)(1) Alternatives Analysis (AA), submitted to the USACE and EPA on June 3, 2010, to be the preferred LEDPA. While Drainage Avoidance #1 in the SA/DEIS (or Alternative #5 in the AA) has a similar level of impacts to the Waters of the US (WUS) compared to Alternative #3, despite placing no SunCatchers in the washes, it was determined by the Applicant that Drainage Avoidance #1 was not practicable from a cost analysis due to the reduction of too many SunCatchers. However, we are of the opinion that Alternative #3 in the AA has not been fully analyzed regarding the impacts of placing SunCatchers in select washes on sediment transport, wash morphology, and water quality, both onsite and offsite per our previous testimony.

Chang's supplemental local scour analysis (2010) was developed to highlight inaccuracies in calculations by Staff in the SA/DEIS with respect to placing SunCatchers in the washes. The results of the local scour analysis by Chang at each pedestal in Wash D were combined in aggregate to infer that the cumulative local scour area relative to total wash area is insignificant. Chang's analysis did not include general scour effects in the calculations, and more importantly did not effectively account for the deposition and transport of the displaced sediment from around each pedestal. Apart from partial refilling of the scour around each pedestal on the receding limb of the flood hydrograph, it is not clear whether the displaced sediments only redeposit in the washes and/or whether they are transported downstream and offsite as an outcome of placing SunCatchers in the washes.

As such, these oversimplifications and unanswered questions in the analysis have reinforced our concerns and recommendations that more detailed calculations are needed to assess the onsite and offsite morphological and sedimentation (or water quality) impacts of the SunCatchers in the washes.

SUMMARY RESPONSE

In addition to the concerns raised above regarding the Staff's supplemental assessment and the Applicant's analyses, the substantial issues raised by our prior testimony remain, since prior issues, concerns, and recommendations have not been adequately addressed in part or in whole.

REFERENCES

CEC. 2010. Imperial Valley Solar Project (08-AFC-5) Supplemental Staff Assessment.

Chang. 2010b. Computation of Local Scour on Streambed Induced by SunCatchers. Prepared for Ecosphere Environmental Services.

Ecosphere Environmental Services. 2010. 404B-1 Alternatives Analysis for the Imperial Valley Solar Project. Prepared for USACE Los Angeles District.

SES. 2008. Application for Certification for the Stirling Energy Systems (SES) Solar Two Project, Volumes 1 and 2. Prepared for the California Energy Commission.

Todd Engineers. 2007a. Review of Groundwater Issues, Draft EIR/EIS for US Gypsum Expansion / Modernization Project. Prepared for Lilburn Corporation.

Todd Engineers. 2007b. Water Supply Assessment for US Gypsum Expansion / Modernization Project. Prepared for County of Imperial.

STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the **IMPERIAL VALLEY SOLAR PROJECT**	Docket No. 08-AFC-5

ADDITIONAL REBUTTAL TESTIMONY OF SCOTT CASHEN ON BEHALF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY ON BIOLOGICAL RESOURCES AND ALTERNATIVES FOR THE IMPERIAL VALLEY SOLAR PROJECT

July 21, 2010

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Qualifications

Education

I have a Master's of Science Degree in Wildlife and Fisheries Science from the Pennsylvania State University, University Park. The degree program included coursework in Landscape Ecology, Biometrics, Statistics, Conservation Biology, and Wetland Ecology. For my thesis, I conducted seven seasons of independent research on avian use of restored wetlands. The U.S. Fish and Wildlife Service subsequently used my technical report as a model for other habitat restoration monitoring projects in Pennsylvania.

Work Experience

My employment experience has included work in the fields of wildlife biology, forestry, and natural resource consulting. Much of my work over the past two and a half years has involved review of environmental documents associated with development of large-scale solar energy facilities. To date, I have served as an expert on 12 different solar projects, 9 of which are being sited in the Mojave Desert. I am currently entering the second year of a two-year contract I hold with the State of California to conduct surveys for the Peninsular bighorn sheep near Anza-Borrego Desert State Park. I serve as a member of the scientific review team responsible for assessing the effectiveness of the US Forest Service's implementation of the Herger-Feinstein Quincy Library Group Act.

For the past two and a half years I have operated my own consulting business. I previously served as a Senior Biologist for TSS Consultants and ECORP Consulting. Other positions I have held have included conducting wildlife research for the National Park Service, the Point Reyes Bird Observatory, and the University of California. While in graduate school I served as an instructor of Wildlife Management and as a teaching assistant for a course on ornithology.

STATEMENT

I. INTRODUCTION

The testimony contained herein is based on my review of the Supplemental Staff Assessment issued on July 7, 2010 and other environmental documents prepared for the Imperial Valley Solar Project ("Project"). This additional rebuttal testimony is intended to add to my previous opening and rebuttal testimony regarding the biological impacts posed by this Project and to provide additional analysis of Project alternatives proposed by the Applicant in the Applicant's additional Opening Testimony.

II. AVIAN PREDATORS AND RAVEN PLAN

The proposed project is likely to lead to an increased abundance of flat-tailed horned lizard (FTHL) predators. These include loggerhead shrikes, roadrunners, raptors, round-tailed squirrels, common ravens, coyotes, and kit foxes.[1] Researchers have theorized that increased predator density is responsible for the absence of FTHL along anthropogenic boundaries such as those that would be created by the Project.[2]

The applicant has prepared a draft Raven Management Plan, which staff has incorporated into proposed Condition of Certification "BIO-12." Staff has concluded that if the condition is implemented, BIO-12 would minimize the effects of increased predation on the FTHL population to less than significant levels under CEQA.[3]

The Applicant's Proposed Raven Management Plan is not Adequate

TIMELINE NOT SUFFICIENT

The Applicant proposes to monitor the effectiveness of the Raven Management Plan through the Project construction phases, and report on the implementation of the plan for two years following completion of the Project.[4] The Applicant's proposed timeline is insufficient, as demonstrated by statements made in the Applicant's draft Raven Management Plan. These include:

A. "It will be difficult to determine if the project is contributing to a decline in the local flat-tailed horned lizard population due to the difficulty in monitoring flat-tailed horned lizard densities and raven predation."

B. "Much of the plan's success lies in the effectiveness in discouraging human practices that would attract ravens to the area."

[1] SSA, p. C.2-40.
[2] Young KV and AT Young. 2005. Indirect effects of development on the flat-tailed horned lizard. Final Report submitted to Arizona Game and Fish Department, Yuma. 11 pp.
[3] SSA, p. C.2-81.
[4] SES 2009 (tn 50613) – Draft Raven Monitoring, and Control Plan, dated 03/20/09. Submitted to Energy Commission/Docket Unit on 03/19/09.

C. "Because ravens are highly adaptive, the need for adaptive management would be necessary."[5]

None of these issues can be resolved in the short timeframe proposed by the Applicant. Because "human practices that would attract ravens" and the raven's ability to implement adaptive strategies will occur for the life of the Project, the Applicant's Raven Management Plan must similarly occur for the life of the Project if raven populations are to be adequately controlled. As currently written, Staff's proposed Condition of Certification does not ensure that Project impacts to ravens are mitigated.

MONITORING TECHNIQUES ARE NOT FEASIBLE

The Applicant's proposed Raven Management Plan consists of driving surveys that will target the Project site, the nearby transmission line corridors, and the surrounding areas.[6] The Applicant states these surveys will be used to document raven activity within two kilometers of the "site."

It's not apparent that there are existing roads within the "surrounding areas" to use driving surveys as a means of documenting raven activity in the various locations indicated by the Applicant. Furthermore, vehicles are a direct and indirect threat to FTHLs (e.g., crushing of lizards, habitat degradation, introduction of invasive plants), and thus use of vehicles to survey for ravens would counter the goal of preventing FTHL mortality. Unless Staff and the resource agencies require walking surveys or other raven monitoring techniques (perhaps a suite of different techniques), the monitoring plans are infeasible and pose significant unmitigated impacts to FTHL.

SUCCESS CRITERION IS NOT FEASIBLE

According to the Applicant's proposed Raven Management Plan, "[i]f after two years of reporting the agencies determine that the raven management program is effective, and ravens are not adversely affecting the local flat-tailed horned lizard population due to Solar Two [Imperial Valley Solar] site operation, then the raven surveys and reporting schedule will be phased out."[7] This is not a feasible success criterion because there is no identified means of determining whether ravens are affecting the local FTHL population as a result of the Project development.

Staff's Proposed Condition of Certification Lacks Control Measures for Other FTHL Predators

The proposed Project is likely to lead to an increased abundance of several other predators of FTHL. Research has demonstrated these predators can have a significant effect on FTHL populations.[8] The SSA concludes the Raven Management Plan (BIO-12)

[5] *Id.*
[6] *Id.*
[7] *Id.*
[8] 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.

and Weed Management Plan (BIO-18) would reduce impacts from FTHL predators to less than significant levels.[9] This conclusion is unsupported because neither condition addresses how the Applicant will monitor and control the abundance of the numerous other FTHL predators besides ravens.

III. WEED MANAGEMENT PLAN IS NOT ADEQUATE

Staff's proposed mitigation for weed management is insufficient. First, neither the SSA nor the Applicant's draft Weed Management Plan specify the success criteria for weed management, or the triggers that will be used to determine when adaptive management measures are necessary.

Second, the SSA does not specify the duration of the Applicant's weed management efforts. The Applicant's draft Weed Management Plan suggests the Applicant will submit reports during the "monitoring period," but it never specifies the duration of that monitoring period. Activities that will promote the colonization and spread of weeds (e.g., ground disturbance, water use, vehicular traffic) will occur for the life of the Project. Therefore, Staff needs to ensure that the Applicant's weed management efforts occur for the life of the Project.

Third, the Applicant has yet to provide information on how the Project site will be revegetated after closure. The Applicant's draft Weed Management Plan states: "[s]hould the Solar Two project site ever be closed a site reclamation and revegetation plan should be drafted with the goal of reducing the extent of weeds that persist on the site following closure."[10] Until the Applicant provides an adequate plan that ensures proper reclamation and revegetation for Project closure, the Project poses a significant unmitigated impact from long term weed invasion.

IV. THE SSA IMPROPERLY CHARACTERIZES PROJECT VEGETATION AND DISTURBANCE LEVEL

The SSA states the vegetation communities within the proposed Project site consist of 5,024.4 acres of Sonoran creosote bush scrub habitat and 1,038.7 acres of disturbed habitat.[11] This does not appear to be an accurate characterization of the Project site. The AFC indicates the Project site contains only 30.3 acres of disturbed habitat, and that the majority of the Project Site is relatively undisturbed.[12]

The SSA states no sensitive natural vegetation communities occur in the survey area or within one mile of the project boundary.[13] This statement is incorrect. The desert iodine scrub community referenced in the SSA is a sensitive natural community.[14] Additional

[9] SSA, p. C.2-81,82.
[10] Applicant's Draft Noxious Weed Management Plan, p. 6-5.
[11] SSA, p. C.2-2.
[12] AFC, p. 5.6-8.
[13] SSA, p. C.2-21.
[14] SSA, p. C.2-20.

sensitive natural communities are present on the Project site, but have yet to be addressed by the Applicant or Staff. I provided information on this issue in my opening testimony and rebuttal testimony.

V. GOLDEN EAGLE

Staff has concluded the Project site contains suitable foraging habitat for golden eagles, and the loss of foraging habitat is considered a significant impact.[15] Staff has concluded the acquisition of FTHL habitat compensation lands would mitigate impacts to golden eagles.[16] Staff's conclusion lacks scientific support.

First, acquisition of compensatory mitigation for FTHL does not necessarily mitigate Project impacts to golden eagles. This is especially true because the recommended selection criteria for compensation lands do not require the lands to be within the foraging territory of any actual golden eagle nest sites.

Second, research indicates golden eagles selectively use available habitat, and that they concentrate their foraging activities in select "core" areas.[17] 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.[18] 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.[19] 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.[20]

The results of this research have two important implications on the Project. First, in the absence of more appropriate empirical data, one should 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.[21] For example, if all the suitable nest locations are fully-occupied, impacts leading to abandonment of a territory (either through destruction of the nest

[15] SSA, p. C.2-68.
[16] SSA, p. C.2-97.
[17] 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.
[18] 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.
[19] *Id.*
[20] *Id.*
[21] 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.

substrate or through not being re-occupied by either the original nesting pair or a new pair from the floater population) may have a significant negative impact to the area population.[22] Available prey base or intra-species competition may be additional relevant factors in the ability of compensation lands to maintain eagle populations.[23]

Third, the USFWS has indicated that implementation of its Interim Golden Eagle Inventory and Monitoring Protocol is required to "establish the baseline circumstances for evaluation of permit applications and foundation for permit conditions, as well as assist planners so they may conduct informed impact analyses and mitigation during the National Environmental Policy Act (NEPA) process."[24] Yet, the SSA lacks any reference to the USFWS's golden eagle protocol. To conserve the golden eagle population and ensure Project compliance with the Eagle Act, mitigation imposed through Project approval should require the Applicant to implement the USFWS' golden eagle protocol.

Finally, the SSA discusses the USFWS's recommendation to the BLM that it evaluate whether take is likely to occur from loss of foraging habitat and if the loss will impact the ability to meet the preservation standard of the Eagle Act. According to the SSA, San Diego Gas & Electric (SDG&E) is currently collecting data, and once SDG&E's data are available, the BLM can incorporate them into their analysis.[25] This strongly suggests additional data are required to assess whether the Project would comply with the Eagle Act. If my presumption is correct, Staff does not have the information necessary to conclude compliance with the Eagle Act or that Project impacts to golden eagles would be mitigated to less than significant levels through acquisition of FTHL compensation lands.

VI. MITIGATION FOR AMERICAN BADGER AND DESERT KIT FOX

Staff has concluded the proposed Conditions of Certification BIO-15 (Badger and Kit Fox Avoidance and Minimization Measures) and BIO-10 (Flat-Tailed Horned Lizard Habitat Compensatory Mitigation) "would mitigate impacts to American badger and desert kit fox to less than significant levels under CEQA by avoiding take of these species and by *likely offsetting* habitat loss, provided the species occurs on the potential relocation site. The compensation lands acquired under BIO-10 are *assumed to be suitable* as compensation for American badger and desert kit fox."[26] Staff cannot rely on these assumptions to conclude impacts would be mitigated to less than significant levels.

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[22] 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.

[23] 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.

[24] 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.

[25] SSA, p. C.2-97.

[26] SSA, p. C.2-71.

Consequently, BIO-10 needs to specify that American badgers and desert kit foxes occur on the compensation lands. Without the modification to this condition, there is a potentially significant unmitigated impact to American badgers and desert kit foxes.

VII. NOISE

The SSA concludes Project noise that carries offsite would be less than significant because it would be in the estimated range of background noise.[27] This conclusion is not supported. In the Noise and Vibration chapter of the SSA, Staff provides data that demonstrate a considerable increase in cumulative noise levels during the Project construction phase.[28] Noise levels at each of the three sensitive receptors used to collect data would exceed the noise level known to adversely affect bird species.[29] As a result, the data indicate construction noise is likely to have an adverse effect on bird species within at least two miles of the Project site.[30] This is a potentially significant impact for which mitigation is required (e.g., limiting construction noise to the non-breeding season).

According to the SSA, noise from Project operations would not contribute to a significant increase in cumulative noise levels.[31] However, this conclusion was based on data collected at three sensitive receptors located 4,300 to 10,500 feet away from the Project boundary; it ignores the effects of Project noise in the zone between the Project boundary and the sensitive receptors. The noise generated by the SunCatcher engines will be too loud for most birds to tolerate. Therefore, the significant impacts of noise on wildlife as a result of Project operations needs to be analyzed and mitigated.

VIII. WILDLIFE MOVEMENT

Corridors serve important functions in maintaining population viability. Of particular concern is the maintenance of connectivity between the Yuha Desert Management Area and the West Mesa Management Area, two of the five reserves designated for FTHL. I concur with Staff's conclusion that the loss of FTHL movement corridors and connectivity between the management areas would be a significant adverse impact, which is unmitigable as the project is currently proposed.[32]

In discussing movement corridors, the SSA indicates Coyote Wash serves as a possible movement corridor.[33] However, the SSA subsequently indicates "Wind Zero" is a reasonably foreseeable project that includes development in the South Fork Coyote

[27] SSA, p. C.2-212.
[28] SSA, Noise Table 5, p. C.9-9.
[29] SSA, p. C.2-60. The SSA suggests a threshold of effect at 60 dBA; however, research has shown a threshold as low as 36 dBA.
[30] Staff predicted a cumulative noise level of 61 dBA at ML5, which is 10,500 feet northeast of the Project site. *See* SSA, p. C.9-7 and C.9-9.
[31] SSA, Noise Table 8, p. C.9-12.
[32] See Figures 1 and 2 attached.
[33] SSA, p. C.2-42.

Wash.[34] Consequently, Coyote Wash cannot be considered a potentially viable corridor that would allow wildlife movement between the two management areas.

Climate Change

The SSA provides a good summary on the effects of climate change. In particular, it states:

A. "preservation of connected blocks of habitat ***will be vital*** to allow movement of species to portions of their range that provide more suitable habitat or to allow movement to new areas that may support suitable habitat in the future."[35]

B. "it is important to site renewable energy projects so as to maintain the greatest degree of connectivity as possible to protected blocks of habitat or to acquire compensation lands that protect connectivity."[36]

The SSA then jumps to the conclusion that the impacts of climate change would be less than significant with appropriate levels of compensatory mitigation.[37] This conclusion is unfounded and unlikely. Condition of Certification BIO-10 requires the Applicant to purchase compensatory habitat within or "near" FTHL Management Areas in the Colorado Desert.[38] However, the specific location of the compensation lands must be identified before Staff can analyze the mitigation value for species' movement in response to climate change. Private lands within the Management Areas (i.e., lands potentially available for acquisition) are isolated blocks within a larger matrix of public lands.[39] As such, their acquisition may preserve connectivity *within* a Management Area, but they would do nothing to mitigate the Project's elimination of connectivity *between* Management Areas.

IX. BURROWING OWL

Impact Assessment and Avoidance

To avoid potential impacts to burrowing owls that might be nesting within the impact area, the SSA requires surveys using methods recommended by the California Burrowing Owl Consortium prior to decommissioning/plant closure activities.[40] I agree that surveys conducted according to the recommended protocol are the proper means of minimizing impacts to burrowing owls. However, protocol surveys for burrowing owls must also be conducted <u>before</u> the Project is constructed. To date, the Applicant has not conducted protocol surveys for burrowing owls on the Project site, and the SSA simply requires a "pre-construction" survey before initial ground disturbance. A pre-construction survey of unspecified level of effort is not the appropriate or recommended method for identifying

[34] SSA, p. C.2-111.
[35] SSA, p. C.2-112. [emphasis added]
[36] SSA, p. C.2-112.
[37] SSA, p. C.2-113.
[38] SSA, p. C.2-169.
[39] *See* SSA, Cumulative Impacts Figure 2 and 3.
[40] SSA, p. C.2-93.

and avoiding impacts to burrowing owls. Prior to Project construction, the Applicant should be required to conduct protocol surveys for burrowing owls so Project impacts to the species can be accurately assessed and appropriate mitigation can be developed.

Mitigation Measures

Staff's proposed mitigation requires the Applicant to prepare a Burrowing Owl Relocation Area Management Plan if burrowing owls are detected in the Project disturbance area. The SSA states the Burrowing Owl Relocation Area Management Plan ("Plan") should include monitoring and maintenance requirements, details on methods for measuring compliance goals, and remedial actions to be taken if management goals are not met.[41] However, the SSA itself does not provide any specific minimum, measurable performance standards, contingency plans if the performance standards are not met, or a timeline for implementation of the Plan. These items need to be established before a decision on the Project is made.

Owl burrows were detected on the Project site and live owls were detected both offsite and along the transmission line corridor.[42] Therefore, it is reasonable to expect burrowing owls will be detected during pre-construction surveys, especially on a large project site in Imperial County (which contains the majority of California's burrowing owl population). As a result, preparation of a Burrowing Owl Relocation Area Management Plan should not be deferred to a later date when its outcome would be uncertain.

X. CONSERVATION MEASURES FOR SPECIAL-STATUS PLANTS

Avoidance and Minimization

The SSA discusses the need to establish buffers around environmentally sensitive areas (ESAs). ESAs would be established for protected plant species occurrences, and they would be a minimum of 20 feet from the uphill side of the occurrence and 10 feet from the downhill side.[43] The SSA does not establish success criteria or triggers for remediation to ensure the ESAs are effective in offsetting Project impacts.

Moreover, scientific knowledge further dictates the proposed protection measures would be ineffective. Protection measures (including buffer size) need to be based on a plant's ecological requirements (e.g., sunlight; moisture; shade tolerance; edaphic, physical, and chemical characteristics) and the threats to its viability (including adjacent land use). Staff on the Calico Solar project concluded a 250-foot buffer would be needed for on-site plant protection.[44] There is no basis to conclude a buffer roughly 1/12th the size of that recommended for the Calico Solar Project would provide sufficient protection at the Project site, especially considering both projects would use the same technology.

[41] SSA, p. C.2-184.
[42] AFC, Bio Tech Report, Figure 2.
[43] SSA, p. C.2-194.
[44] Calico Solar Project SA/DEIS, p. C.2-175.

The ecological requirements of most plant species are poorly understood. However, scientific knowledge supports the inference that a project of this size (i.e., approximately 6,156 acres) will disrupt the ecological processes (e.g., seed dispersal, pollination, and gene flow) that may be necessary to maintain viable populations. The SSA lists several indirect impacts from the Project that Staff anticipates will affect special-status plants.[45] I cannot envision a scenario in which a buffer of 10 feet would be likely to protect a plant from these Project impacts. The Energy Commission Staff that evaluated the Ivanpah Solar Electric Project derived a similar verdict. Specifically, Staff concluded mitigation that relied on maintaining islands of protected plants within a disturbance matrix was "infeasible to protect the special-status plants from significant indirect impacts (i.e., from introduction and spread of non-native plants, alterations of the local hydrology, higher than normal dust levels, etc.)."[46] Although there is value in conserving special-status species within the Project site, any attempts to do so should have a reasonable possibility of success, and they should be backed by remedial mitigation measures if conservation goals are not met.

MONITORING AND REPORTING REQUIREMENTS

Condition of Certification BIO-19-A.2.g directs the Applicant to conduct monitoring of the ESAs and submit monitoring reports.[47] However, the condition does not specify the variables the Applicant needs to monitor (e.g., abundance, vigor, reproductive output), or more importantly, the success criteria associated with the monitoring efforts. Without appropriate success criteria, the monitoring effort would be ineffective.

Mitigation Measures

AVOIDANCE

Staff's proposed mitigation establishes certain scenarios in which the Applicant would be required to avoid on-site impacts to a minimum of 75 percent of the total population of a particular plant species.[48] For perennial plants, the SSA indicates the percent avoidance shall be based on the percentage of the total individuals affected.[49] For annual plants, the SSA indicates the percent avoidance shall be based on the total area occupied by the occurrence plus any additional habitat deemed essential for maintaining healthy, reproductive populations.[50] These guidelines need to be strengthened to ensure the Applicant satisfies the intent of the condition.

For perennial plants, higher weights should be applied to mature plants. Most mature plants would have a higher likelihood of surviving the Project's indirect impacts, and

[45] SSA, p. C.2-63.
[46] Energy Commission Staff's Rebuttal Testimony, Ivanpah Solar Electric Generating System. p. 28.
[47] SSA, p. C.2-195.
[48] SSA, p. C.2-201.
[49] *Id.*
[50] *Id.*

they provide a higher conservation value due to their ability to reproduce. For example, suppose the Project site contains 25 mature plants and 75 seedlings of a perennial plant species requiring on-site avoidance. As currently written, the condition of certification would enable the Applicant to kill the 25 mature plants (so as to avoid shading of SunCatchers) as long as the 75 seedlings were avoided. This would not be ecologically viable strategy.

For annual plants, I agree with the need to consider additional habitat that may be essential for maintaining healthy, reproductive populations. However, the condition of certification should establish more stringent guidelines on how this additional habitat may be used in calculating avoidance requirements. For example, suppose the Project site contains 25 acres of the target species and 75 acres deemed essential for maintaining healthy, reproductive populations. As currently written, it appears the condition of certification would enable the Applicant to eliminate the 25 acres occupied by the plants as long as the remaining 75 acres were avoided. Clearly this would not satisfy the intent of Staff's proposed mitigation.

Project Impacts to Wiggin's Croton

Wiggin's croton is a BLM Sensitive plant and it is listed as Rare under the California Endangered Species Act. The Applicant detected two mature individuals and five young Wiggin's croton plants along the proposed water pipeline route. According to the SSA, impacts to Wiggins' croton would be avoided so Project impacts are considered less than significant and no mitigation is expected. However, the SSA indicates specific avoidance measures to reduce potential impacts to special-status plant species were not proposed by the Applicant, and the SSA lacks any specific information to substantiate its statement that Project impacts to Wiggin's croton plants will be avoided.

Impacts to Special-Status Species from Seeley Wastewater Facility Upgrade

The SSA discusses the ongoing efforts to evaluate sensitive avian resources that may be impacted by upgrades to the Seeley Wastewater Treatment Facility. However, it does not provide any information on the sensitive botanical resources that might be affected by upgrade activities. Protocol rare plant surveys are needed to evaluate the impacts of the facility upgrade. The Applicant's 2010 botanical survey report suggests protocol surveys of the wastewater facility have not been conducted, and there is no indication that they are planned. Without protocol rare plant surveys, there are potential significant unmitigated impacts to rare plants associated with the Facility upgrade.

COMPENSATION LANDS

Staff's proposed mitigation allows the Applicant to acquire unoccupied habitat to compensate for Project impacts to special-status plant species.[51] Acquisition of unoccupied habitat would likely result in an unmitigated, significant impact to sensitive botanical resources.

[51] SSA, p. C.2-202.

First, even if the acquisition lands are adjacent to occupied habitat, they would be incapable of addressing direct threats to the target species. These include numerous threats that the Applicant would have no control over (e.g., grazing, mowing, herbicide use, trampling, vehicle activity, and several others). Second, Staff's allowance for acquisition of unoccupied compensation lands that are not adjacent to occupied habitat lacks scientific foundation, and does not meet CEQA mitigation standards for certainty, performance, and feasibility. Arguably, the practice of acquiring unoccupied habitat adjacent to more unoccupied habitat would counter that stated criteria that acquisition lands contain "habitat that is critical to the maintenance or sustainability of the affected species" and that they contain "linkages for species dispersal."[52]

Verification Measures

Verification measures for Condition of Certification BIO-19 include the requirement that the Applicant submit a draft Special-Status Plant Mitigation Plan no less than 30 days prior to ground-disturbing activities. According to the SSA, the plan should contain a "conceptual proposal for compensatory mitigation."[53] To ensure mitigation goals are met, Staff's verification measures need to include a process for revisions to the plan, its approval, and transformation of a concept into an actual plan before impacts to botanical resources occur.

XI. FTHL MITIGATION

Avoidance Measures

The SSA indicates a translocation plan for flat-tailed horned lizards (FTHL) will no longer be required.[54] However, the SSA also indicates FTHLs encountered during construction must be moved out of harm's way.[55] The SSA does not provide any information on the methods that should be implemented to capture any FTHL that are encountered; the process for safely handling and transporting lizards; or the locations of acceptable release sites (including their habitat suitability). These issues need to be addressed and subjected to professional review before the Applicant moves any FTHL.

To reduce impacts to FTHL, the SSA indicates clearance surveys for FTHL would occur prior to each phase of decommissioning/plant closure activity.[56] FTHL would then be relocated to suitable habitat outside of the development impact area.[57] The SSA provides no explanation for why clearance surveys should be implemented before decommissioning, but not before Project construction.

[52] SSA, p. C.2-202,203.
[53] SSA, p. C.2-205.
[54] SSA, p. C.2-74.
[55] *Id.*
[56] SSA, p. C.2-94.
[57] *Id.*

Compensation Measures

SELECTION CRITERIA

Staff has established selection criteria for FTHL compensation lands. However, some of the selection criteria are infeasible and lack certainty.

Selection criterion #1a is that the compensation lands be within or near FTHL Management Areas (MAs) in the Colorado Desert, with potential to contribute to FTHL habitat connectivity and build linkages between FTHL MAs, known populations of FTHLs, and/or other preserve lands.[58] Compensation lands within a FTHL MA would not contribute to connectivity *between* MAs, although they might promote connectivity *within* an individual MA.

Selection criterion #1b specifies that compensation lands should provide moderate to high quality habitat for FTHL. However, the SSA has not defined what is considered moderate or high quality habitat, nor a scientifically defensible process for evaluating habitat quality at proposed compensation sites.

Selection criterion #1c requires compensation lands to be near larger blocks of lands that are either already protected or planned for protection, or which could "feasibly be protected."[59] Even if a property can feasibly be protected, there is no assurance that it *will be* protected.

Selection criterion #1d specifies that compensation lands should be connected to lands occupied by FTHLs, or where FTHLs can be reasonably expected to occur, based on habitat or historic occurrences.[60] To the best of my knowledge, no one has developed a habitat model for FTHL. Therefore, the SSA requires an explanation for how habitat can be used to predict FTHL occurrence, and it should specify the habitat variables that would be measured to support a prediction. Additionally, the criterion states the adjacent lands should "ideally" have FTHL populations that are stable, recovering, or likely to recover.[61] This suggests it would be permissible for the Applicant to acquire lands adjacent to areas where FTHL populations are crashing. Such lands may not support the intent of Staff's condition. Unless the compensation lands are connected to lands where FTHL occupation has been confirmed, there is no basis to conclude the compensation lands will contribute to connectivity (i.e., criterion #1a).

[58] SSA, p. C.2-169.
[59] SSA, p. C.2-170.
[60] *Id.*
[61] *Id.*

Selection criterion #1e specifies that compensation lands should "ideally" contain soils that are stable and not suffering erosional damage.[62] This suggests it would be permissible for the Applicant to acquire lands with unstable soils that are suffering erosion damage. Such lands may contain soils that are incapable of remediation or supporting FTHL.

Selection criterion #1f specifies that compensation lands should not be characterized by high densities of invasive species.[63] Because the SSA has not defined what is considered a "high" density, the criterion lacks a measurable and enforceable standard.

IN-LIEU FEE

Condition of certification BIO-10 allows the Applicant to satisfy its mitigation requirements with an in-lieu fee instead of acquiring compensation lands.[64] However, the SSA has not established how the in-lieu fee would be calculated, nor has it demonstrated that it would be commensurate with the actual cost of acquiring, enhancing, and managing land within a MA.

VERIFICATION MEASURES

Staff's proposed verification measures allow the Applicant 18 months to acquire the compensation lands, and then an additional 180 days to prepare a management plan. However, Staff's proposed mitigation (primarily 1:1) does not account for the lag time between impacts and implementation of offsetting mitigation.

XII. CUMULATIVE IMPACTS

The SSA concludes "[t]he proposed IVS project would be expected to contribute only a small amount to the possible short term cumulative impacts related to biological resources because the proposed conditions of certification described below would minimize and offset the contributions of the proposed IVS project to the cumulative loss of habitat for native plant communities and wildlife, including special status species."[65] This conclusion is misleading and unjustified. First, the Project would not contribute a "small amount to the possible short term cumulative impacts" to biological resources. The Project would be a relatively large contributor to the loss of connectivity and overall ecosystem degradation in the region. These impacts would have a severe, long-term effect on biological resources, and they would not be mitigated by the proposed conditions of certification. Second, there is no scientifically defensible basis to conclude the Project's cumulative contribution to habitat loss will be mitigated until the compensation lands have been identified.

[62] *Id.*
[63] *Id.*
[64] SSA, p. C.2-176.
[65] SSA, p. C.2-111.

XIII. ALTERNATIVES AND LEDPA ANALYSIS

The SSA provides an assessment of reduced acreage alternatives. The Applicant has also provided information on Project alternatives, which was submitted as testimony to support 404B-1 alternatives analysis. Through this analysis, the Applicant concluded "Alternative #3" (the 709MW alternative) was the least environmentally damaging practicable alternative (LEDPA).

The following biological resources have the potential to be adversely affected by the Project: (1) flat-tailed horned lizard; (2) special-status botanical resources; (3) burrowing owl; (4) golden eagle; (5) migratory and other special-status birds; (6) American badger; (7) desert kit fox; (8) wildlife movement corridors; (9) ecosystem processes; (10) Peninsular bighorn sheep; and (11) aquatic resources. In the subsequent testimony I address each of these resources in relation to the Applicant's proposed LEDPA, and then in relation to Staff's proposed alternatives.

Applicant's Proposed LEDPA

FLAT-TAILED HORNED LIZARD

The Applicant's testimony states the Applicant's proposed LEDPA would provide corridors for flat-tailed horned lizards (FTHL) to traverse the proposed project site because Washes C, I, and K would only have perpendicular road crossings and no SunCatchers.[66] In addition, the Applicant has stated the proposed LEDPA would minimize FTHL mortality and provide relatively undisturbed washes for movement because "the roads within the washes throughout the site would be used minimally (Table 16) during operation of the project."[67] The Applicant's conclusion is not supported by the data, which indicate vehicles would make approximately 6,602 wash crossings per month.[68] The Applicant's proposed LEDPA would result in nearly the same amount of land disturbance as the proposed Project. Therefore, the Applicant's proposed LEDPA does not address habitat loss, which is considered the primary reason for the overall population decline of FTHL.[69]

Maintaining connectivity among habitats is important for the long-term conservation of the FTHL. However, the critical distinction between the *presence* of a corridor and its *function* was not addressed in the Applicant's analysis. That is, just because a corridor is present does not mean it will be used, or that it will function as intended.

Research has shown FTHL are absent along human-induced edges, likely due to the increased abundance of predators.[70] Research has also shown that prolonged noise can

[66] Applicant's 404B-1 Alternatives Analysis, p. 50,51.
[67] Applicant's 404B-1 Alternatives Analysis, p. 51.
[68] Applicant's 404B-1 Alternatives Analysis, Table 16.
[69] Flat-tailed Horned Lizard Interagency Coordinating Committee. 2003. Flat-tailed horned lizard rangewide management strategy, 2003 revision. 80 pp. plus appendices.
[70] E.g., Young KV and AT Young. 2005. Indirect effects of development on the flat-tailed horned lizard. Final Report submitted to Arizona Game and Fish Department, Yuma. 11 pp.

adversely affect some lizards (e.g., desert iguana, Mojave fringe-toed lizard). The FTHL Rangewide Management Strategy indicates noise effects on FTHL are more likely where prolonged, loud noise occurs. This would be the situation on the Project site due to the noise generated by the SunCatcher engines. FTHL prey almost entirely on native ants.[71] Ant population dynamics are complex, but it's likely that removal of vegetation from the Project site would reduce native ant populations, which are dependent on seed as a food source. Each of these factors suggests the washes referenced in the Applicant's LEDPA would not function as viable corridors through the Project site.

SPECIAL-STATUS BOTANICAL RESOURCES

The Applicant's LEDPA analysis did not provide any information on the proposed LEDPA's ability to reduce impacts to special-status botanical resources.

BURROWING OWL

The Applicant's LEDPA analysis did not provide any information on the proposed LEDPA's ability to reduce impacts to burrowing owls. However, the Applicant's proposed LEDPA would cause considerable habitat loss for burrowing owls. In addition, any burrowing owls that remain on-site would be subject to collisions with vehicles, which have been cited as a significant source of mortality by several researchers.[72]

GOLDEN EAGLE

The Applicant's LEDPA analysis did not provide any information on the proposed LEDPA's ability to reduce impacts to golden eagles. However, the Applicant's proposed LEDPA would not leave an undisturbed minimum patch that would be required to support foraging eagles, thus it would not reduce impacts to the species.

MIGRATORY AND OTHER SPECIAL-STATUS BIRDS

The Applicant's LEDPA analysis did not provide any information on the impacts to migratory and other special-status birds. However, most bird species are sensitive to noise disturbance, which would not be reduced by the Applicant's proposed LEDPA.

AMERICAN BADGER, KIT FOX, AND WILDLIFE MOVEMENT CORRIDORS

The Applicant's LEDPA analysis did not directly address the impacts to American badger and desert kit fox. However, the Applicant concluded its proposal to omit SunCatchers from Washes C, I, and K would "provide habitat for the numerous animal species that utilize the denser wash vegetation and provide corridors of movement

[71] Flat-tailed Horned Lizard Interagency Coordinating Committee. 2003. Flat-tailed horned lizard rangewide management strategy, 2003 revision. 80 pp. plus appendices. p. 8.
[72] Haug, E. A., B. A. Millsap, and M. S. Martell. 1993. Burrowing Owl (*Speotyto cunicularia*). *In* A. Poole and F. Gill, editors. The birds of North America, No. 61. The Academy of Natural Sciences, Philadelphia, Pennsylvania; The American Ornithologists' Union, Washington, DC.

through the project area."[73] This is not a reliable conclusion. American badgers and kit fox will be cleared from the site prior to construction, and the perimeter fence will then prevent movement of most terrestrial wildlife through the Project area.

ECOSYSTEM PROCESSES

Research in U.S. deserts has shown that (a) complex dynamics of species populations reflect interactions with other organisms and fluctuating climate; and (b) some environmental perturbations can cause wholesale reorganization of ecosystems because they exceed the ecological tolerances of dominant or keystone species.[74] The Applicant's proposed LEDPA would not alleviate the disruption of ecosystem processes that are likely to result from Project impacts.

PENINSULAR BIGHORN SHEEP

The proposed Project would result in loss of foraging habitat and movement corridors for bighorn sheep. These elements on the Project site are critical to the long-term viability of bighorn sheep populations. Due to the perimeter fence, the Applicant's proposed LEDPA would not alleviate Project impacts to bighorn sheep.

AQUATIC RESOURCES

Construction of the Project would include soil excavation, clearing, grading, installation of solar disks, construction of the Main Services Complex, roads, utilities, water pipeline, substation, and other ancillary features.[75] During these activities, there would be both permanent and temporary impacts to the physical substrate of Waters of the U.S. from dredge and fill activities and construction of permanent facilities.[76] Other potential impacts to the surface substrate of Waters of the U.S. would result from periodic vehicle crossings.[77]

The Applicant's testimony states that the proposed LEDPA would reduce permanent impacts to Waters of the U.S. from 177 acres to 39.1 acres, a reduction of 78 percent.[78] The maps provided in the Applicant's analysis are difficult to interpret, but they do not suggest a reduction of this magnitude.[79]

The Applicant's proposed LEDPA would cause extensive disturbance to the site's soils and vegetation. Once this occurs, soils will be extremely susceptible to wind and water erosion. The Applicant submitted testimony that concluded the Project would not change hydrology or sediment flow. To the contrary, Dr. Chris Bowles and Chris Campbell

[73] Applicant's 404B-1 Alternatives Analysis, p. 53.
[74] Brown J.H., Whitham T.G., Ernest S.K.M. & Gehring C.A. 2001. Complex species interactions and the dynamics of ecological systems: long-term experiments. Science 293: 643-650
[75] Applicant's 404B-1 Alternatives Analysis, p. 48.
[76] *Id.*
[77] *Id.*
[78] Applicant's 404B-1 Alternatives Analysis, p. 1.
[79] Applicant's 404B-1 Alternatives Analysis, Map 2 and Map 4.

submitted testimony in which they concluded the proposed Project would result in significant impacts, both onsite and offsite, due to changes in hydrologic processes, increases in soil erosion by water, adverse changes to the morphology of the washes, and potential hazards to the solar dishes placed in the washes. Based on my review of the literature and my experience with development projects, it is impractical to expect even the best BMPs would prevent sediment transfer out of the Project site following mass disturbance.

Most of the sediment that is displaced from the Project site will eventually be deposited into the New River and Salton Sea. The New River is impaired by sediment and siltation.[80] The Project would further contribute to this impairment. It would also jeopardize recovery of the Salton Sea. The Salton Sea provides important food resources for numerous resident and migratory bird species. Although many fish populations in the Salton Sea have crashed, tilapia populations have been recovering and they continue to support a recreational fishery. Mass disturbance of the Project site would contribute suspended silt to the Salton Sea, which would then be potentially toxic to tilapia and other fish species.[81]

River mouths, particularly in the southern part of the Salton Sea, provide areas of reduced salinity and higher dissolved oxygen. These estuarine areas are relatively small, yet very productive, and they routinely support higher concentrations of birds than surrounding areas. The size of the estuarine areas is influenced primarily by the amount of inflow. The New and Alamo rivers, which constitute nearly 80 percent of the inflow to the Salton Sea, support the largest estuarine areas. The Project's contribution of additional sediment to the New River would lower dissolved oxygen levels, and may alter the geomorphology of the estuaries. Both of these issues would cause potentially significant impacts on fish and wildlife resources.

Staff's Proposed Alternatives

The SSA analyzed a 300 MW Project alternative that would reduce impacts to habitat for FTHL, burrowing owls, golden eagles, bighorn sheep, American badgers, kit foxes, and other special-status species by 57 percent.[82] Due to the reduced footprint, less of the landscape would be fenced (from 6,063.1 acres to 2,577 acres).[83] This would allow viable dispersal corridors for terrestrial wildlife. With additional analyses, the 300 MW Alternative could be designed to promote FTHL movement between the Management Areas and reduce impacts to desert washes. These considerations—in conjunction with the attached advice letter from San Diego Gas and Electric— demonstrate that the 300 MW Alternative cannot be dismissed for failing to significantly reduce biological impacts.[84] Similarly the 300 MW Alternative should not be dismissed as economically

[80] California Department of Water Resources and California Department of Fish and Game. 2006. Salton Sea Ecosystem Restoration Program Draft Programmatic Environmental Impact Report. p. 6-2.
[81] Buermann Y, HH Du Preez, GJ Steyn, L Smit. 1997. Tolerance levels of redbreast tilapia, Tilapia rendalli (Boulenger, 1896) to natural suspended silt. Hydrobiologia 344:11-18.
[82] SSA, p. C.2-99.
[83] SSA, p. C.2-100.
[84] See Exhibit 499-M.

infeasible, since the Applicant has a power purchase agreement for a 300 MW project and no more. I recommend Staff and the resource agencies work with the Applicant to develop and further refine the LEDPA because Project impacts to the FTHL, desert washes, and other sensitive biological resources can be further minimized.

STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the IMPERIAL VALLEY SOLAR PROJECT (formerly SES Solar Two)	Docket No. 08-AFC-5

OPENING BRIEF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY

August 11, 2010

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I. INTRODUCTION

In the arid west, water supply is a condition-precedent for any development. The Applicant, Imperial Valley Solar, LLC, has not yet adequately identified a water source that will meet the Imperial Valley Solar Project's ("Project") construction and operation requirements.

The Applicant has had two years to obtain, permit and verify its entitlement to an adequate water supply for the Project and has thus far failed to do so. Even after the issuance of countless supplements to the application for certification and after the presentation of numerous water supply experts at two sets of evidentiary hearings, the Applicant still has not provided a reliable water supply that is adequate to meet the needs of the Project. Throughout this proceeding, CURE has repeatedly advised Staff and the Commission that, until the Applicant can provide evidence of a reliable water supply, continuing to process the application is an inefficient use of Staff and Commission resources. The Energy Commission simply cannot permit the Project without identifying a reliable water supply for Project construction and operation.

Neither of the two potential water sources identified by the Applicant, a proposed upgrade to the Seeley Waste Water Treatment Facility ("SWWTF") and groundwater from the Dan Boyer well in the Ocotillo/Coyote Wells sole source aquifer, are permitted, sufficient or reliable to meet the Project's needs and both present significant unmitigated impacts and do not comply with LORS. The bottom line is that until a reliable water supply is provided by the Applicant, the Commission cannot approve the Project.

Also in the arid west, water quality is a primary consideration for any development. The Applicant, Imperial Valley Solar, LLC, has not yet adequately identified how the Project will be designed to avoid impacts on waters of the U.S., as requested by the U.S. EPA. The Applicant's decision to build in ephemeral washes, significantly impacting surface water resources, including waters of the U.S., has led to a series of project modifications that are currently nothing more than a work in progress.

These valiant but, ultimately, failed efforts by state and federal agencies to redesign the Project for the Applicant now puts the Commission in a conundrum. The federal agencies may recommend approval of a redesigned Project that Commission Staff has not analyzed and the impacts of which are different than and do not fall within the scope of the Project or any of the alternatives analyzed by Commission Staff to date.

The Commission simply cannot permit a newly redesigned Project that has not been fully identified and that has not been analyzed by Commission Staff. It is

a basic precept of CEQA and the Warren Alquist Act, that the Project design is the starting point, not the ending point, of an environmental analysis. The analysis of impacts to air quality, soil and water, and biological resources, all flow from the design and until the design is settled upon, the Project's potentially significant impacts to environmental resources cannot be analyzed.

Thus, until the Applicant can provide a permitted, reliable, long-term water supply and a clear description of the Project for which it seeks a license, the Commission should suspend this proceeding.

II. STANDARD OF REVIEW AND BURDEN OF PROOF

The Commission itself must determine whether the proposed Project complies with "other applicable local, regional, and state, . . . standards, ordinances, or laws," and whether the proposed project is consistent with Federal standards, ordinances, or laws. (Pub. Res. Code § 25523(d); 20 Cal. Code Regs. § 1752(a).) The Commission may not certify any project that does not comply with applicable LORS unless the Commission finds both (1) that the project "is required for public convenience and necessity" and (2) that "there are not more prudent and feasible means of achieving public convenience and necessity." (Pub. Res. Code § 25525; 20 Cal. Code Regs. § 1752(k).)

The Commission also serves as lead agency for purposes of CEQA. (Pub. Res. Code § 25519(c).) Under CEQA, the Commission may not certify the Project unless it specifically finds either (1) that changes or alterations have been incorporated into the Project that "mitigate or avoid" any significant effect on the environment, or (2) that mitigation measures or alternatives to lessen these impacts are infeasible, and specific overriding benefits of the Project outweigh its significant environmental effects. (Pub. Res. Code § 21081; 20 Cal. Code Regs. § 1755.) These findings must be supported by substantial evidence in the record. (Pub. Res. Code § 21081.5; 14 Cal. Code Regs. §§ 15091(b), 15093; *Sierra Club v. Contra Costa County* (1992) 10 Cal.App.4th 1212, 1222-23.)

The Applicant "shall have the burden of presenting sufficient substantial evidence to support the findings and conclusions required for certification of the site and related facility." (20 Cal. Code Reg. § 1748(d).) Commission Staff must review the application, assess the environmental impacts and determine whether mitigation is required, and set forth this analysis in a report written to inform the public and the Commission of the Project's environmental consequences. (20 Cal. Code Reg. §§ 1744(b), 1742.5(a)-(b).) Staff's analysis must reflect the "independent judgment" of the Commission. (14 Cal. Code Regs. § 15084(e).) Before approving a project, the Commission must conclude that Staff's report has been completed in compliance with CEQA, that the Commission has reviewed and considered the information in the report prior to approving the project, and that Staff's report

reflects the Commission's independent judgment and analysis. (14 Cal. Code Regs. §15090(a); see Pub. Res. Code § 21082.1(c)(3).)

The Commission must determine whether sufficient substantial evidence is in the record to support its findings and conclusions. (Pub. Res. Code §§ 21080, 21081.5.) "Substantial evidence" is defined as:

> [F]act, a reasonable assumption predicated upon fact, or expert opinion supported by fact. Substantial evidence is not argument, speculation, unsubstantiated opinion or narrative, evidence that is clearly inaccurate or erroneous…(*Id.* § 21080(e).)

California courts have made clear that "substantial evidence" is not synonymous with "any" evidence. (*Newman v. State Personnel Board* (1992) 10 Cal.App.4th 41, 47.) As defined by the courts, substantial evidence means evidence of "ponderable legal significance, reasonable in nature, credible and of solid value." (*Lucas Valley Homeowners Ass'n v. County of Marin* (1991) 233 Cal.App.3d 130, 156-7.)

This requirement also applies to expert opinions. Expert opinion does not constitute substantial evidence when it is "based on speculation and conjecture, and accordingly…not supported by substantial evidence in light of the whole record." (*See, e.g., Friends of the Old Trees v. Department of Forestry and Fire Protection* (1997) 52 Cal.App.4th 1383, 1399, fn. 10; *Coastal Southwest Dev. Corp. v. California Coastal Zone Conservation Commission* (1976) 55 Cal.App.3d 525, 532.) It does not include argument, speculation, unsubstantiated opinion or narrative, or evidence that is clearly inaccurate or erroneous. (*Id.*) Additionally, "opinion testimony of expert witnesses does not constitute substantial evidence when it is based upon conclusions or assumptions not supported by evidence in the record." (*Hongsathavij v. Queen of Angels/Hollywood Presbyterian Med. Ctr.* (1998) 62 Cal.App.4th 1123, 1137.) These requirements ensure that members of the public and interested agencies will have an opportunity to review and comment on significant impacts and proposed mitigation and identify any shortcomings. This public and agency review has been called "the strongest assurance" of the adequacy of an environmental review document under CEQA. (*Sundstrom v. Mendocino County* (1988) 202 Cal.App.3d 296, 308.)

Once substantial evidence of a potential impact is presented to the lead agency, the burden shifts to the agency to investigate the potential significance of the impact. (*Napa Citizens for Honest Government v. Napa County Board of Supervisors* (2001) 91 Cal.App.4th 342, 385 (EIR inadequate for failing to investigate substantial evidence of Project's potential to impact protected steelhead trout).)

In this case, there is insufficient evidence to support the required findings and, therefore, the Commission cannot certify the Project without additional specific analysis and mitigation.

III. THE WATER SUPPLY IS INADEQUATE, VIOLATES LORS AND WOULD RESULT IN UNANALYZED AND UNMITIGATED SIGNIFICANT IMPACTS

The Commission cannot permit the Project until the Applicant identifies, and Staff analyzes in a report prior to evidentiary hearings, an adequate and reliable water supply to meet the Project's construction and operational requirements. Staff has reviewed the Applicant's proposed water sources in a water supply assessment. The Staff's Water Supply Assessment makes it crystal clear that there is not currently an adequate water supply proposed for the Project:

> "In summary, staff's analysis determined that water supplies are not sufficient to satisfy the water demands of the project for the following reasons:
>
> 1. The well is permitted by a company other than the Project Applicant to extract 40 acre-feet per year, which is less than the Project's average annual construction water requirement of 51.1 acre-feet per year.
>
> 2. Staff estimates that residential water use supplied by the well is about 6 acre-feet per year. If Imperial Valley Solar purchases the entire 40 acre-feet per year of permitted pumping these existing users will have to obtain their water from elsewhere, effectively shifting the demand to other wells in the basin.
>
> 3. Staff has determined additional groundwater use exacerbates basin overdraft, which cannot be mitigated and therefore is considered a significant negative environmental impact.
>
> 4. No firm, existing back-up or supplemental supply is identified making the project infeasible should the proposed private well fail to meet project water requirements.
>
> 5. The project applicant is proposing to replace the proposed temporary groundwater supply with recycled wastewater from the Seeley Wastewater Treatment Plant. However, the necessary upgrades and water diversion have not yet been approved or permitted, and therefore the Seeley wastewater option is not a firm and reliable existing supply at this time."[1]

[1] Exhibit 302, pp. C.7-53 and 54.

CEQA requires an EIR to assume that all phases of the Project will eventually be built and will need water, and must analyze the impacts of providing water to the entire project. (*Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2002) 40 Cal.4th 412.) If it is not possible to confidently determine that anticipated future water sources for a development project will be available, CEQA requires a discussion of replacement sources or alternatives to use of the anticipated water and the environmental consequences of those contingencies. *Id*. If it is not possible to confidently determine that backup water sources will be available, CEQA requires a discussion of other replacement sources or alternatives.

The Applicant identified only two potential water sources, neither of which are permitted, sufficient or reliable and both of which present significant unmitigated impacts and do not comply with LORS: a proposed upgrade to the Seeley Waste Water Treatment Facility ("SWWTF") and groundwater from the Dan Boyer well in the Ocotillo/Coyote Wells sole source aquifer.

The evidence in the record does not demonstrate that either of these water sources would reliably meet the water needs of the Project. The Applicant has had two years to develop a water supply and has thus far failed to do so. The Commission cannot permit this Project until the Applicant makes a showing based upon substantial evidence that there is a reliable water supply for the Project's needs. Until a reliable water supply is provided by the Applicant, the Commission cannot approve the Project.

A. STAFF HAS NOT ANALYZED THE IMPACTS OF THE SWWTF UPGRADE AS PART OF THE "WHOLE OF THE PROJECT" BECAUSE THE BASELINE ANALYSIS IS NOT COMPLETE AND ENVIRONMENTAL IMPACTS ARE NOT IDENTIFIED

In order to provide water to the Project, the SWWTF would require a substantial upgrade to its facilities that would eliminate the current discharge of its treated effluent into Wildcat drain that flows to the New River. This effluent currently supports a 2-acre wetland that is contiguous with the riparian area along the New River that flows to the Salton Sea. Wildcat drain and the New River riparian corridor are potential habitat to a number of special status plant and animal species, including the federal and state listed endangered Southwestern willow flycatcher, a species that has been detected at the SWWTF effluent outfall. The Seeley County Water District ("SCWD") is preparing an Environmental Impact Report that will analyze the impacts from this upgrade project. As will be described below, the baseline environmental conditions at the SWWTF have not been determined and it would be pure speculation for the Commission to find that this water supply will ever be available to meet the needs of the Project.

1. CEQA REQUIRES ANALYSIS OF THE WHOLE OF THE PROJECT – INCLUDING THE BASELINE AND POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS AND MITIGATION

Under CEQA, the Commission must analyze potential impacts from the whole of the Project, which, in this case, includes upgrades the SWWTF. The Commission must also mitigate significant impacts from the Project in its entirety.

i. The Commission Must Analyze the Whole of the Project

CEQA applies to "discretionary projects proposed to be carried out or approved by public agencies." (Pub. Res. Code § 21080(a).) "Project" is defined as "the whole of an action" which has the potential to result in a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment. (14 Cal. Code Reg. § 15378.) The Supreme Court in *Laurel Heights I*[2] set forth a two pronged test for determining whether reasonably foreseeable future activities must be analyzed as part of the Project:

> We hold that an EIR must include an analysis of the environmental effects of future expansion or other action if: (1) it is a reasonably foreseeable consequence of the initial project; and (2) the future expansion or action will be significant in that it will likely change the scope or nature of the initial project or its environmental effects.

Failure to consider all phases of a Project constitutes "piecemealing" of a single project into two or more separate phases. CEQA prohibits piecemealing and requires the CEQA document to analyze the "whole project." CEQA mandates "that environmental considerations do not become submerged by chopping a large project into many little ones -- each with a minimal potential impact on the environment - which cumulatively may have disastrous consequences."[3]

Before undertaking a project, the lead agency must assess the environmental impacts of all reasonably foreseeable phases of a project.[4] A public agency may not

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[2] *Laurel Heights Improvement Assn. v. Regents of the University of California* ("*Laurel Heights I*") (1988) 47 Cal.3d 376, 390.

[3] *Bozung v. LAFCO* (1975) 13 Cal.3d 263, 283-84; *City of Santee v. County of San Diego*, (1989) 214 Cal.App.3d 1438, 1452.

[4] *Laurel Heights Improvement Assoc. v. Regents of the Univ. of Calif.* (1988) 47 Cal.3d 376, 396-97, 253 Cal.Rptr. 426) (EIR held inadequate for failure to assess impacts of second phase of pharmacy school's occupancy of a new medical research facility).

segment a large project into two or more smaller projects in order to mask serious environmental consequences. As the Second District stated:

> The CEQA process is intended to be a careful examination, fully open to the public, of the environmental consequences of a given project, covering the entire project, from start to finish . . . the purpose of CEQA is not to generate paper, but to compel government at all levels to make decisions with environmental consequences in mind.[5]

The Courts have addressed this issue in *San Joaquin Raptor*, where the court held that an EIR was deficient because it did not consider the impacts of a sewer expansion that was necessary to serve a new residential development. (*San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713.) Since the development could not go forward without the sewer expansion, the "total project" included both the housing and the sewer project necessary to serve it. The County was required to prepare a new EIR analyzing the whole project, including the residential development, and the sewer and other services, particularly their growth-inducing capabilities that were a reasonably foreseeable component of the project.

In *Tuolumne County Citizens for Responsible Growth v. City of Sonora* (2007) 155 Cal.App.4th 1214, the Court examined a proposed home improvement center and road realignment that had been studied under separate CEQA reviews. The Court reasoned that the two actions were part of a single "project" for purposes of CEQA review, even though the City had historically recognized the advantages of realigning the road and both activities could be achieved independently of each other. The Court held that because approval of the home improvement center was conditioned upon completion of road realignment, and the activities were related in time, physical location, and entity undertaking actions, the two proposals must be studied in one CEQA document. "Their independence was brought to an end when the road realignment was added as a condition to the approval of the home improvement center project." (*Id*. at 1231.)

Like the sewer system in *San Joaquin Raptor* and the road realignment in *Tuolumne County Citizens*, the impact of the SWWTF upgrade must be analyzed by the Commission. It is undisputed that upgrades to this facility are necessary, conditions-precedent for the Project to operate.[6] Since operation of the Project cannot go forward without upgrades to the SWWTF, the "total project" includes both the power plant and the wastewater treatment upgrades necessary to serve it. As the Court found in *San Joaquin Raptor v. County of Stanislaus*, the Commission must analyze the whole project, including the power plant, the wastewater treatment plant upgrades, and the elimination of water that is currently used to

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[5] *Natural Resources Defense Council v. City of Los Angeles* (2002) 103 Cal.App.4th 268.
[6] Exhibit 302, p. C.2-1.

support biological resources in the region, all of which are reasonably foreseeable components of the Project.

Also, like the development in *Tuolumne County Citizens for Responsible Growth v. City of Sonora*, since the Project is partially conditioned upon a signed agreement with a recycled water purveyor, the two actions are part of a single "project" for purposes of CEQA review, even if the power plant and waste water treatment upgrades could be achieved independently of each other.[7] Thus, "[t]heir independence was brought to an end" when Soil and Water Condition of Certification 9 "was added as a condition to the approval" of the Project. (*Tuolumne County Citizens for Responsible Growth v. City of Sonora*, 155 Cal.App.4th at 1231.) However, unlike *Tuolumne,* the SWWTF upgrades would not occur but for the proposed power plant. The Seeley County Water District had no potential funding opportunities for upgrading the SWWTF until the Applicant approached them to provide water for the Project.[8] Therefore, the SWWTF is even more clearly part of the Project in this case.

In sum, the Commission must independently analyze potentially significant environmental impacts from the SWWTF upgrades as a part of the "whole of the action" under CEQA. That analysis is not in the current evidentiary record.

ii. The SWWTF May Result In Potentially Significant Unanalyzed and Unmitigated Impacts to Endangered and Special Status Species and a Wetland Along the New River Riparian Corridor

a. Staff failed to establish the baseline for measuring impacts.

As a part of the CEQA analysis, the Commission must analyze the baseline conditions at the SWWTF. The environmental setting, or baseline, refers to the conditions on the ground as measured by surveys and studies, and is a starting point to measure whether a proposed project may cause a significant environmental impact. CEQA defines "baseline" as the physical environment as it exists at the time CEQA review is commenced. (14 Cal. Code Reg. §15125(a); *Riverwatch v. County of San Diego* (1999) 76 Cal.App.4th 1428, 1453.) "An EIR must focus on impacts to the existing environment, not hypothetical situations." (*County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 952.)

If the description of the environmental setting of the project site and surrounding area is inaccurate, incomplete or misleading, the EIR does not comply with CEQA. Without accurate and complete information pertaining to the setting of

[7] Exhibit 302, p. C.7-85.
[8] Hearing Transcript of July 26, 2010, p. 120-121.

the project and surrounding uses, it cannot be found that the FEIR adequately investigated and discussed the environmental impacts of the development project. (*Cadiz Land Co., Inc. v. Rail Cycle, L.P.* (2000) 83 Cal.App.4th 74, 87, quoting and citing *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus,* (1994) 27 Cal.App.4th 713, 721-722, 729.)

Describing the environmental setting is critical to an accurate, meaningful evaluation of environmental impacts. The importance of having a stable, finite, fixed environmental setting for purposes of an environmental analysis was recognized decades ago. (*County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185.) Today, the courts are clear that, "[b]efore the impacts of a project can be assessed and mitigation measures considered, an [environmental review document] must describe the existing environment. It is only against this baseline that any significant environmental effects can be determined." (*County of Amador*, *supra*, 76 Cal.App.4th at 952.) In fact, it is a central concept of CEQA, widely accepted by the courts, that the significance of a project's impacts cannot be measured unless the EIR first establishes the actual physical conditions on the property. In other words, baseline determination is the first rather than the last step in the environmental review process. (*Save Our Peninsula Committee v. Monterey Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 125.)

In describing the environmental baseline of the SWWTF, the SA/DEIS attempted to rely upon the Mitigated Negative Declaration ("MND") that had been issued by the SCWD. However, the MND was rejected as inadequate and the SCWD is preparing an EIR.[9] To supplement the Staff's analysis, Commission Staff issued Appendix 1 to the SA/DEIS that purported to analyze the environmental impacts of the SWWTF upgrade. However, the Appendix concluded that the analysis was ongoing:

> The analysis conducted by Dudek for the Draft MND indicated that surface water is supplied to the wetland by agricultural return flows and underdrain flow from a separate drinking water treatment plant, and that this water will be adequate to maintain the wetland after water supply from the SWWRF, totaling 0.15 cfs, is discontinued (Dudek 2009). However, as was highlighted in comments on the Draft MND, the volume of the agriculture return flows and underdrain flow was not provided and the SWWRF MND/Environmental Assessment (2003) stated that loss of effluent flows from the SWWTF could result in significant impacts to wetlands. A hydrologic study is necessary to quantify how withholding water from the emergent wetland will affect the wetland habitat and any listed species that may occupy the affected habitat, including the federally listed endangered Yuma clapper rail. This study may identify significant impacts, but

[9] Exhibit 301.

mitigation measures may be able to reduce the impacts to less than significant.[10]

Thus, the vast majority of necessary survey data and information has not been provided to Staff or parties in this proceeding. At this point, Staff is unable to reach any required conclusion regarding this aspect of the proposed Project.

b. Staff failed to recognize substantial evidence of potentially significant unmitigated impacts to endangered and special status species and a wetland along the New River riparian corridor

According to the Supplemental Staff Assessment, the USFWS recommended that the following be completed for the environmental review process: 1) a hydrologic study where a quantification of the flows coming from other sources to the effluent channel wetland is provided with an assessment of the likelihood of its continued existence after the effluent flows are discontinued; 2) a vegetation composition assessment of the adjacent New River corridor with an evaluation of the effluent channel wetland in the context of the broader mosaic of habitats in the vicinity; and 3) protocol surveys for the presence/absence of Yuma clapper rail.[11]

The hydrologic study is not complete and no results have been provided to date. Similarly no study from the vegetation composition assessment has been provided.[12] In the wildlife surveys that have been prepared to date, the federal and state listed endangered Southwestern Willow Flycatcher was found to be present in Wildcat drain. Although Staff testified that surveys for Yuma clapper rail were negative, the reports of the methodologies and scope of these surveys and other special status bird survey have not been provided to the parties in this proceeding and have not been subject to any public scrutiny. Enormous gaps remain in the record regarding the impacts that will occur from development of the SWWTF. Until that information is provided and the SWWTF upgrade is permitted, the Commission cannot reasonably conclude that the SWWTF upgrade will be approved and will ever be available as a water supply for the Project.

c. Treated effluent outfall was required as mitigation to protect wetlands and outfall cannot be eliminated without substantial evidence

Diverting the water from the Wildcat drain outfall to the Project may result in the loss of the wetland and will reduce flows to the New River and the Salton

[10] *Id*. at p. AP.1-12.
[11] Exhibit 302, p. ES-23.
[12] Hearing Transcript, July 27, 2010, pp. 194-195.

Sea.[13] In a now-rejected mitigated negative declaration ("Seeley 2003 MND") for a prior upgrade project at the SWWTF, the Seeley County Water District determined that it was necessary to keep the effluent outfall at the same location as a form of mitigation to protect the wetland resources in Wildcat drain.[14] The Seeley 2003 MND concluded that moving the outfall would result in the *rapid demise* of the two-acre wetland:

> Relocation of the existing point of discharge, as proposed, would potentially result in the rapid demise of an approximately 2-acre wetland area, since the [SWWTF] effluent is the major water contributor to this drainage. The proposed direct discharge point into the New River would not replace the lost wetland area. Mitigation to reduce the impact of the Proposed Project to less than significant would involve pumping the treated effluent to the existing outfall location to sustain the existing wetland area. Although the loss of the wetland is potentially significant under CEQA and/or NEPA, Section 404 of the Clean Water Act does allow for discontinuation of flows that have created artificial wetlands. However, the degree of significance that the impact would have, as well as permission for hydrologic interruption, would need to be determined by the applicable resource agencies. This can sometimes be an involved and time-consuming process. The proposed mitigation would avoid the necessity for this process, and would keep WWTP effluent flows at the same location and the same volume that exist at the present time.[15]

In order to eliminate the discharge that was required as mitigation in the 2003 MND, CEQA requires the Commission to find, based on substantial evidence, that the mitigation is no longer feasible or necessary. CEQA caselaw establishes a presumption that mitigation measures are only adopted by a lead agency after due investigation and consideration. (*Napa Citizens for Honest Government v. Napa Cty. Board of Supervisors* (2001) 91 Cal.App.4th 342.) Therefore, a lead agency may only delete an approved mitigation measure in a subsequent CEQA review if the subsequent document has an adequate explanation, supported by substantial evidence, as to the reasoning for eliminating the mitigation as no longer feasible or necessary. (*Id.*)

Substantial evidence is not in the record that diverting the water from the current outfall to the Project site would not significantly impact the wetland, the New River and the Salton Sea. Although a hydrologic study is underway, the results of that study have not been provided or analyzed by Commission Staff or the public. In the absence of substantial evidence to the contrary, the Commission

[13] Exhibit 429.
[14] Exhibit 462.
[15] Exhibit 462.

must rely upon the finding in the 2003 MND that the effluent was determined to be necessary for maintaining the wetland, and must assume this decision was made by the SCWD after due investigation and consideration. The Commission may not disturb the findings of the 2003 MND and approve the use of the SWWTF water for the Project.

2. THE COMMISSION CANNOT MAKE A FINDING OF COMPLIANCE WITH ESA SECTION 7

The Commission cannot determine that the SWWTF will comply with Section 7 of the Endangered Species Act ("ESA") because neither Staff nor the wildlife agencies have determined compliance with the ESA with respect to protected species that will be affected by the SWWTF outfall to the Wildcat drain and the riparian area along the New River. The reason that no agency is able to make a final determination at this time is that there is insufficient information thus far upon which to base a decision.

i. Status of Special Status Bird Surveys

A number of special status bird species are known to rely upon the wetlands along the New River including the Yuma Clapper Rail, a federal and state listed endangered species and state fully-protected species; California Black Rail a state listed threatened, fully-protected species; Southwestern Willow Flycatcher, federal and state listed endangered; and Least Bell's Vireo also federal and state listed endangered.[16] According to the **Commission Staff Biologist Joy Nishida, impacts have not been determined because the surveys are not completed and mitigation requirements by U.S. Fish & Wildlife Service are unknown**.[17] Until the baseline information is provided, the Commission cannot reasonably determine the significance of the impacts to special status species from the SWWTF upgrade. Moreover, no surveys have been conducted along the New River riparian corridor beyond the drain immediately adjacent to the Project site.

ii. Section 7 Of The Endangered Species Act

The ESA provides that each agency shall "in consultation with and with the assistance of the Secretary [of the Interior, acting through the FWS], ensure that any [agency action] is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species .... [using] the best scientific and commercial data available." (16 U.S.C. § 1526(a)(2).)

[16] Hearing Transcript, July 27, 2010, p. 193.
[17] *Id*.

The agency's process begins with a determination of whether there may be an endangered/threatened species in the area to be impacted by the proposed activity, i.e., the "action area." If species are present in the action area, then the agency is required to prepare a Biological Assessment (BA). (16 U.S.C. § 1536(c)(1).) A BA may include the results of on-site inspections, the views of recognized experts on the species at issue, a review of the literature, an analysis of the effects of the action on the species and its habitat, and an analysis of alternate actions. (50 C.F.R. 402.12(f).) The action area is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." (50 C.F.R. 402.02(d).)

To date, no BA has been provided to the Commission, the results and methodology of surveys for special status species have not been made available to the Commission or the public, and areas of indirect impacts have been largely ignored, pending the outcome of the hydrologic study. At this point, the Commission cannot make a finding that this Project will comply with Section 7 of the ESA or that the water from the SWWTF is likely to be available for Project use.

iii. Additional Concerns Of Imperial Irrigation District Have Not Been Addressed – Cumulative Impacts of Reducing Effluent From SWWTF Upgrade On The Water Conveyance System, Water Conservation Program and Salton Sea Restoration Efforts

The Imperial Irrigation District ("IID") submitted comments to the Seeley County Water District about potentially significant environmental impacts from the proposed upgrade to the SWWTF.[18] IID expressed concern that the cumulative effect of this project, in addition to a number of other projects which similarly augment the reduction of drain flows on the overall drainage system, may have significant and unmitigated impacts on the IID system, the IID water conservation program and Salton Sea restoration efforts. Neither the Applicant nor Commission Staff have provided analyses of any of these issues.

iv. CEC Cannot Make A Finding Of Consistency With LORS

The SWWTF upgrade project cannot proceed until the Project receives approval of a LAFCO extension of service, a change of use permit from the State Water Board, approval from the Seeley County Water District, and an incidental take permit from the United States Fish and Wildlife Service. The Commission cannot make a finding that the SWWTF upgrades will comply with all LORS because the analyses of the Project's impacts are not complete.

[18] Exhibit 469.

a. SWWTF upgrade requires a LAFCO extension of service

In order for the SWWTF to provide water to the Project, a service extension would have to be provided by the Local Agency Formation Commission ("LAFCO"). In making a determination of whether to grant a service extension, LAFCO must consider whether the proposed extension of services promotes orderly development, discourages urban sprawl, preserves open space and prime agricultural lands, provides housing for persons and families of all incomes and is an efficient extension of governmental services. (Cal. Govt. Code § 56434(b).) To date, there is no evidence that LAFCO has undertaken such a review. At the evidentiary hearing, the Applicant testified that a service extension was required for the Project and was underway (but not completed).[19]

b. SWWTF upgrade project requires a change of use permit from state water board

Any diversion of water from the New River must be reviewed and approved by the State Water Resources Control Board in the form of a change of use permit.[20] The Board will take into account all prior rights, the availability of water in the basin, and the flows needed to preserve in-stream uses, such as recreation and fish and wildlife habitat.[21] To date, there is no evidence that this analysis has even begun.

B. THE CEC MAY NOT APPROVE USE OF THE DAN BOYER WELL AS A TEMPORARY OR PERMANENT WATER SUPPLY BECAUSE THE WELL WILL NOT MEET THE WATER REQUIREMENTS OF THE PROJECT, USE OF THE WELL POSES UNMITIGATED SIGNIFICANT IMPACTS, AND RELIANCE ON THE WELL WOULD VIOLATE LORS

The Project requires 51.1 acre feet per year ("AFY") of water for construction and 32.7 AFY for operation. On May 5, 2010, the Applicant filed an AFC Supplement that included a tentative "will serve letter" from the Dan Boyer Water Company that is contingent upon a later formal agreement. The amount of water to be provided for the Project was not stated in the letter. The only information provided by this letter is that the Dan Boyer well has a pumping limit of 40 acre feet per year ("AFY") and that the Dan Boyer Water Company would temporarily supply some unidentified amount of water for "approximately six to 11 months."

[19] Hearing Transcript of July 26, 2010, p. 139.
[20] Exhibit 302, p. C.7-85.
[21] Cal. Water Code § 1211.

Nothing in this letter or in the Applicant's subsequent filings provides any further documentation that the Dan Boyer Water Company has committed to provide water for the duration of the Project or could provide a sufficient supply of water to meet the Project's water requirements.

1. THE DAN BOYER WELL WILL NOT MEET THE WATER SUPPLY REQUIREMENTS FOR THE PROJECT

Commission Staff concluded that the SWWTF is not a reliable water source and that the Project would need to rely upon the Dan Boyer well as the primary water supply for the Project.[22] However, there is no evidence that this alternative water supply source can provide the required water under any scenario.

As stated, the Project requires 51.1 AFY of water for construction and 32.7 AFY for operation.[23] Dan Boyer Water Company did not state the amount of water to be provided to the Applicant. The only information provided was that the Dan Boyer well has a pumping limit of 40 acre feet per year ("AFY") and that the Dan Boyer Water Company would temporarily supply some unidentified amount of water for "approximately six to 11 months." Even under a hypothetical scenario in which there is evidence that the Applicant could obtain all of the water available from the Dan Boyer Water Company (which there is not), the Dan Boyer well can only provide 34 acre-feet per year.[24]

Because the Project has no reliable water supply, the Applicant proposed at the evidentiary hearing to "slow" construction in order to use only the Dan Boyer well until the SWWTF comes online. There are two fatal flaws in the Applicant's claim at the evidentiary hearing.

First, the Applicant still states that it requires 42 acre feet of water for the first year of construction.

Second, the Applicant admitted that the Project would need water from the SWWTF within six to twelve months:

> MS. HOLMES: Did you do an analysis to determine what would happen to your schedule if the Dan Boyer well needed to be relied upon for a period of time greater than six months?

[22] Exhibit 302, Supplemental Staff Assessment, p. C.7-54.
[23] Exhibit 302, p. C.7-44.
[24] *Id.*

> MR. VAN PATTEN: We did not do a very detailed analysis, but back of the envelope analysis that we did do would indicate that we could use the Dan Boyer well for up to a year and not miss our contract COD date with SDG&E.[25]

However, Staff concluded that it is pure speculation as to whether water will ever be available from the SWWTF.

The Commission must scrutinize the Dan Boyer well as if it will be the sole water supply for the Project. The Applicant testified that it can only use the well without the SWWTF for one year without violating their contractual obligations with SDG&E. Thus, the Project may not be viable without the SWWTF, a wholly unreliable water supply. Moreover, scrutiny of the Boyer well has revealed that it is not an adequate water supply for the Project. There is no other back up water supply.[26]

i. There is Unrebutted Expert Testimony That Additional Water Is Needed To Supply the Project

The Staff Assessment concluded that ***only 34 acre-feet per year is available from the Dan Boyer well***.[27] No matter how you analyze the water needs of the Project, this will not be a sufficient amount of water for construction and operational water needs. The Applicant's witness Marc Van Patten testified that even if the construction schedule was reduced to a six day work week, the ***Project would still need 42.4 acre-feet per year*** ("AFY") and that would not be sufficient to meet the terms of the Applicant's contract with SDG&E if additional water is not identified after one year.[28] Dr. Bowles submitted unrebutted testimony that ***water deficiencies are even greater*** than what has been acknowledged in the Supplemental Staff Assessment.[29]

First, the SSA states that the **construction phase requires 51.1 AFY** on average (or 166 AF total) based on 45,000 gallons per day ("gpd") for dust control and 90,000 gpd for 15 peak construction days during the Applicant's 39 month construction window, resulting in an average deficiency of 17.1 AFY based on an available supply of 34 AFY.[30] In reviewing the AFC's monthly calculations, Dr.

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[25] Hearing Transcript of July 26, 2010, p. 116. [Note this is based upon the Applicant's Assumption that 39.5 AFY will be available from the Boyer well.]
[26] Exhibit 302, Supplemental Staff Assessment, p. C.7-54.
[27] *Id*.
[28] Hearing Transcript of July 26, 2010, pp. 102 and 198.
[29] Exhibit 499-I, Additional Rebuttal Testimony of Dr. Christopher Bowles and Christopher Campbell, pp. 2-4.
[30] Exhibit 302, Supplemental Staff Assessment, p. C.7-16.

Bowles determined that 52% of the water demand would occur in the first 12 months, 40% would occur in the next 12 months, and 8% would occur in the final 15 months.[31] This testimony was not disputed by Staff or the Applicant. Assuming that the total demand is 166 AF as is outlined in the Supplemental Staff Assessment, then **86 AF would be needed in the first 12 months**, which would equate to a deficiency of 52 acre feet during the first 12 months.[32]

Second, the Staff concluded that operations require 32.7 AFY of water supply based on average annual usage. However, Staff's calculations assumed that there are 8 normal washings (at 14 gals/solar unit) and 1 scrub washing (at 42 gals/solar unit) for a total of 9 washings annually or 14.2 AFY.[33] Dr. Bowles testified that there are numerous instances in the record where the Applicant and Staff assumed that mirror washings occur once per month for a total of 12 washings per year with possibly 8 normal washings and 4 scrub washings, requiring ***an additional 10.3 AFY above the 32.7 AFY estimate.***[34] These calculations demonstrate that there will be an operational deficiency in addition to the construction deficiency.

Third, the water requirements for dust control were estimated at 5.6 AFY or 5,000 gpd for 365 days per year.[35] However, Condition of Certification WorkerSafety-8 would require the Applicant to increase the frequency of watering and essentially double the daily rate of water use on certain days to enhance dust control for the purpose of preventing the spread of Valley Fever to workers and the public.[36] Reasonably assuming 20% of days require enhanced dust control, Dr. Bowles calculated that this would equate to ***6.7 AFY that was not included in*** the Supplemental Staff Assessment's ***estimated operational water needs***.[37] No additional water was allocated to protect workers and the public from Valley Fever on high-dust days.

Fourth, Dr. Bowles submitted undisputed testimony that the Supplemental Staff Assessment's ***Air Quality section assumes that power generation will occur during the construction window.[38] However, the overlap of construction and operation water needs was not included in the water supply calculations.***

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[31] Exhibit 499-I, Additional Rebuttal Testimony of Dr. Christopher Bowles and Christopher Campbell, p. 3.
[32] *Id.*
[33] Exhibit 302, Supplemental Staff Assessment, p. C.7-17.
[34] Exhibit 499-I, Additional Rebuttal Testimony of Dr. Christopher Bowles and Christopher Campbell, p. 3.
[35] Exhibit 302, Supplemental Staff Assessment, p. C.7-16.
[36] Exhibit 302, Supplemental Staff Assessment, p. C.15-25.
[37] Exhibit 499-I, Additional Rebuttal Testimony of Dr. Christopher Bowles and Christopher Campbell, p. 4.
[38] *Id.*

Considered in combination, Dr. Bowles calculated that there could be an additional need for 13.6 AFY above the 34 acre feet AFY that Staff found is potentially available from the Dan Boyer well for 6-11 months.[39] The SSA assumes that, in the event that demand will exceed supply, the Applicant will suspend mirror washing.[40] Dr. Bowles testified that suspension of mirror washing will not solve water deficiencies that arise from construction water needs to prevent health hazards mitigated by Condition of Certification WorkerSafety-8.[41]

2. USE OF THE DAN BOYER WELL VIOLATES THE IMPERIAL COUNTY GROUNDWATER ORDINANCE

The Applicant's expert Robert Scott testified that the Applicant did not have any permit for the use of the well other than well registration.[42] The Dan Boyer well does not currently hold either an extraction facility permit or an exportation permit, both of which are required by the County groundwater ordinance.

i. The County Has Not Authorized Export Of Water From The Dan Boyer Water Well Outside of the Water Basin

The Imperial County Municipal Code states that no groundwater shall be exported from the county or from the groundwater basin or *portion of a basin* from which the groundwater is derived unless the operator of the exportation facility has applied for and obtained a permit which establishes the quantity of groundwater which may be exported and the conditions on such exportation. (Imperial County Municipal Code, Div. 22, Chap. 3, § 92203.01.) The County Code prohibits the Planning Commission from issuing a permit to export water from the County or from the groundwater basin unless the applicant has established that there is an available supply in excess of the amount currently required for reasonable and beneficial uses within the County, and that the Planning Commission determines that such export, if permitted, would not adversely affect the rights of groundwater users within the County or the groundwater basin from which the groundwater is derived. (Id. at § 92203.02.) The Ordinance defines the groundwater basin **as the basin, or portions thereof, within the boundaries of the County and any sub-basins located therein.** (Id. at § 92201.04(O).)

Testimony from Mr. Campbell established that the Ocotillo/Coyote Wells aquifer from which the Dan Boyer well extracts water is a distinct portion of the

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[39] *Id*.
[40] Exhibit 302, Supplemental Staff Assessment, p. C.7-58.
[41] Exhibit 499-I, Additional Rebuttal Testimony of Dr. Christopher Bowles and Christopher Campbell, p. 4.
[42] Hearing Transcript of July 26, 2010, pp. 168-169.

groundwater basin that the Project does not overlie.[43] Therefore, an export permit is required to use water from that well for the proposed Project. In evaluating a permit application, the County would have to consider whether pumping from the Dan Boyer well would adversely affect the rights of groundwater users within the County, the basin (or the sub-basins) from which the groundwater is derived.

The Applicant has provided no indication that the County has conducted such an analysis or that appropriate permits have been obtained.

Further, use of the Dan Boyer well may result in the water table dropping below the well screens for two nearby groundwater users.[44] This would result in significant unmitigated impacts to nearby users and must be considered by the County in evaluating an application for an export permit from the Dan Boyer well.

Staff witness Christopher Dennis acknowledged that the registration only allowed export from the Dan Boyer premises in Ocotillo, not out of the basin. [45] Until an export permit is obtained, the Dan Boyer well water is not available for the Project.

3. ALTHOUGH THE APPLICANT HAS PROPOSED USING THE DAN BOYER WELL FOR THE LIFE OF THE PROJECT, THERE IS NO CONTRACT OR BASIS TO CONCLUDE THAT THE WATER WOULD BE AVAILABLE FOR THAT QUANTITY OR FOR THAT PERIOD OF TIME

The Dan Boyer Water Company has provided a "will serve" letter that states it will *temporarily* furnish well water to Imperial Valley Solar for an expected period of six to eleven months upon execution of an agreement.[46] The Applicant has provided no contract for water beyond this ambiguous will serve letter that does not provide a quantity of water that would be available or any commitment to provide water for the life of the Project. Finally, the Applicant testified that it could only use the Dan Boyer well for up to a year[47] and even that testimony lacks evidence. The Commission has no basis to conclude that the Dan Boyer water company is a reliable water supply.

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[43] Hearing Transcript of July 26, 2010, pp. 249-250.
[44] Exhibit 499-I, Additional Rebuttal Testimony of Dr. Christopher Bowles and Christopher Campbell, p. 5.
[45] Hearing Transcript of July 26, 2010, p. 198.
[46] Exhibit 302, Supplemental Staff Assessment, p. C.7-52.
[47] Hearing Transcript of July 26, 2010, p. 116. [Note this is based upon the Applicant's Assumption that 39.5 AFY will be available from the Boyer well.]

IV. THE ENERGY COMMISSION CANNOT PERMIT THE APPLICANT'S PROPOSED 709 MW ALTERNATIVE DESIGN OR CERTIFY THAT THE PROJECT IS CONSISTENT WITH FEDERAL LORS WITHOUT A FINALIZED LEDPA DETERMINATION FROM THE CORPS AND A STAFF REPORT

The Project would pose significant impacts to waters of the U.S. that would occur as a result of the removal of vegetation and the placement of the SunCatchers and associated infrastructure in the bed of the ephemeral washes.[48] According to the Staff's analysis, placement of the SunCatchers and associated maintenance roads, the electrical collection system, and the hydrogen distribution system would disrupt the physical (e.g., hydrological and sediment transport), chemical, and biological functions and processes of the ephemeral washes.[49] These activities would result in the permanent, direct loss of approximately 165 acres of waters of the U.S., temporary impacts to 5 acres of waters of the U.S., and indirect impacts to 13 acres of waters of the U.S. As a result, the Project requires a Clean Water Act Section 404 permit from the US Army Corps of Engineers ("the Corps").

In an attempt to reduce impacts to waters of the U.S., the Corps provided a Draft 404(b)(1) Alternatives Analysis developed to reduce impacts to waters of the U.S.[50] This includes the Corps analysis of the least environmentally damaging practicable alternative ("LEDPA"). An incomplete version of this alternatives analysis was docketed in the Applicant's rebuttal testimony two working days prior to the evidentiary hearings. A complete copy of the Corps draft analysis was docketed after the evidentiary hearing on August 9, 2010.

The Corps' draft 404(b)(1) alternatives analysis contains a revised Project design for a 709 Mw Project, which the Applicant now adopts and seeks a license for from the Commission. No parties other than the Applicant have had an opportunity to do more than a cursory review of, much less prepare and submit testimony on, the Corps' draft 404(b)(1) analysis, and now the proposed Project, prior to the Commission's evidentiary hearings on July 26 and 27, 2010. Staff Counsel explicitly commented on the fact that there was not time for Staff to review this document prior to the evidentiary hearing:

> MS. HOLMES: I don't have cross-examination, but I want to make a statement for the committee a global statement, and that is that the applicant has requested that the commission approve what's been referred to as the LEDPA, despite our dislike of acronyms. Staff has not analyzed the LEDPA. Staff saw

[48] Exhibit 302, Supplemental Staff Assessment, p. ES-25.
[49] *Id*.
[50] Exhibit 129.

> the draft LEDPA on the 21st of July. Staff has analyzed the project as originally proposed and a series of alternatives. There may be a number of times during these hearings when the question of impacts associated with the LEDPA or potential amelioration of effects associated with the LEDPA come up. Staff cannot testify to any of that. Staff has not examined the LEDPA.
>
> If the committee wishes staff to examine the LEDPA and reach conclusions as to whether or not they're significant impacts, either new significant impacts or existing impacts that we've identified that are reduced, we can do so, but it will take additional time.

In response, the Committee directed Staff to NOT analyze the draft LEDPA.[51] However, **the 709 Mw design is a new Project design that will result in new and different environmental impacts that were not analyzed by Commission Staff and as such, cannot be permitted by the Commission.**

Moreover, it is still an open question as to whether the Project will undergo further redesigns since the U.S. EPA identified the Project as requiring U.S. EPA review of the Corps's draft LEDPA analysis, which has not yet been circulated for agency and public comment.

A. CLEAN WATER ACT SECTION 404 REQUIREMENTS

The Commission must determine whether the Project complies with LORS, including the Clean Water Act. The Clean Water Act implementing regulations prohibit the Corps from permitting a discharge of dredged or fill material if there is a practicable alternative to the proposed discharge which would have a less adverse impact on the aquatic ecosystem (40 CFR 230.10(a).) "An alternative is practicable if it is available and capable of begin done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." (*Id*.) The burden of proof to demonstrate compliance with the Guidelines rests with the applicant; where insufficient information is provided to determine compliance, the Guidelines require that no permit be issued. (40 CFR 230.12(a)(3)(iv).)

In addition to requiring the identification of the LEDPA, the Section 404(b)(1) Guidelines mandate that no discharge of dredged or fill material shall be permitted if it causes or contributes to violations of any applicable State water quality standard, 40 C.F.R. 230.10(b)(1), violates any applicable toxic effluent standard or

[51] Hearing Transcript of July 27, 2010, p. 127.

prohibition, jeopardizes the continued existence of any endangered or threatened species, 40 C.F.R. § 230.10(b)(3), or causes or contributes to significant degradation of Waters of the US, 40 C.F.R. § 230.10(c). Prior to completing its review, the Corps also must ensure that the proposed project is not contrary to the public interest. (33 C.F.R. § 320.4.)

B. THE COMMISSION CANNOT PERMIT THE CORPS' ALTERNATIVE BECAUSE STAFF HAS NOT ANALYZED THE ALTERNATIVE REDESIGNED PROJECT

The draft LEDPA is a redesign and reconfiguration of the Project. Energy Commission regulations require Staff to independently analyze a project's potential adverse environmental impacts and include its assessment in an environmental review document. Energy Commission regulation § 1742.5 provides that "staff shall review the information provided by the applicant and other sources and assess the environmental effects of the applicant's proposal…" (*Id*., § 1742.5(a).) Further, the regulations require Staff to "present the results of its environmental assessments in a report…" *(Id*., § 1742.5(b) (emphasis added).) "The staff report shall indicate staff's positions on the environmental issues affecting a decision on the applicant's proposal." *(Id*., § 1742.5(c) (emphasis added).)

By Staff's own admission, Staff has not independently reviewed the Applicant's proposed Project redesign, which is the Corps' proposed LEDPA. As described below, the Project redesign may result in new and different significant environmental impacts that require new and different mitigation to reduce those impacts to less than significant. Pursuant to Commission regulations, Staff must analyze the proposed Project redesign in a report circulated to all parties.

C. PROJECT DESIGN CHANGES MAY RESULT IN NEW UNANALYZED SIGNIFICANT ENVIRONMENTAL IMPACTS

At the hearing, the Applicant's attorney Ms. Gannon argued that "*the impacts can't get greater, because we have concurred that a 709 is practical. So it cannot possibly get greater than 709*."[52] The problem with the Applicant's argument is that it confuses the size of megawatt output with the amount and significance of environmental impacts posed by Project redesign. The number of megawatts of electricity that a Project will provide is not in any way indicative of the environmental impact it is likely to cause.

The Applicant now requests that the Commission permit a new Project redesign that the record shows would result in new unanalyzed and unmitigated significant environmental impacts. This is a different project than the Project and the alternatives analyzed by Staff, and the redesigned project would result in

[52] Hearing Transcript of July 27, 2010, p. 124.

significant unmitigated environmental impacts that are different than those analyzed by Staff in any of Staff's reports currently in the evidentiary record for this proceeding.

Indeed the Project redesign, as proposed in the draft LEDPA, is distinct from the proposed Project as analyzed by Staff in ways that are directly relevant to the Committee's responsibility under CEQA. One major change involves the removal of spur roads to individual SunCatchers.[53] In the initial design analyzed by Staff, spur roads were used to access each and every one of the thousands of SunCatcher units. The Staff Assessment concluded that **all unpaved roads** [presumably including spur roads] would be stabilized by a chemical dust suppressant.[54] The Project design in the draft LEDPA would remove those spur roads.

Although it is conceivable that removal of roads could reduce particular environmental impacts, it is equally true that other environmental impacts would increase due to **driving in undesignated areas throughout the site on surfaces that have not been stabilized**. The redesigned project's **addition of off-road driving** throughout the Project site would result in potentially significant and different environmental impacts than the impacts analyzed by Staff for every alternative, including the full build-out 750 Mw Project, since every alternative analyzed by Staff assessed the use of stabilized roads. The redesigned Project for which the Applicant now seeks a license proposed significant additional surface areas, which would be subject to repeated trampling by tires from vehicles driving to the SunCatcher units over the life of the Project.

The redesigned Project would result in potentially significant unmitigated and **unanalyzed** impacts on water and air quality. As was testified by Dr. Bowles, once the fragile crusts and pavement are disturbed, the release of fine dust into the water and air could pose significant environmental impacts.[55] The Applicant's witness Mr. Fitzgerald conceded under oath that the air quality impacts of the draft LEDPA had not been analyzed.[56]

> MS. HOLMES: And one of the changes is removal of spur roads to the individual SunCatchers from the maintenance road; is that correct?
>
> MR. FITZGERALD: That's correct.
>
> MS. HOLMES: Do you know what the purpose of those spur roads was? Was it to provide access to the individual SunCatchers from the maintenance road?

[53] Exhibit 129, pp. 24-25.
[54] Exhibit 302, Supplemental Staff Assessment, pp.C.1-15 and C.1-26.
[55] Exhibit 478.
[56] Hearing Transcript of July 27, 2010, pp. 375-376.

> MR. FITZGERALD: Yes. The original proposal had the same type of surface road getting graded to individual SunCatchers for the purposes of long-term washing and maintenance.
>
> MS. HOLMES: So will access to the SunCatcher now occur over roads that don't have that same level of maintenance?
>
> MR. FITZGERALD: Access for the purposes of washing the mirrors in the waters of the U.S. will be over land travel, and that's what was analyzed in the 404B1.
>
> MS. HOLMES: Do you know whether or not the air quality impacts associated with using those kinds of roads was analyzed?
>
> MR. FITZGERALD: No, I don't.

Staff has not analyzed any of these new potentially significant unmitigated impacts within the scope of any of its alternatives.

In addition to additional ground disturbance and soil impacts, increases in the amount of "over land" unmaintained access throughout the site will generate additional dust resulting in significant public health and water quality impacts. Dust is not only an air quality impact in Imperial County but it may present a unique health hazard because of the incidence of Valley Fever transmitted by dust emissions.[57] According to the Staff's analysis, Valley Fever is spread through the air.[58] If soil containing the fungus is disturbed by construction or wind, the fungal spores get into the air where people can breathe in the spores.[59] The Supplemental Staff Assessment requires additional watering of surfaces or soil stabilization whenever dust is generated.[60] The Applicant's water supply is already inadequate to meet the needs of the Project. Any additional significant impacts from dust or water usage that may be caused by the new Project description have not been considered by Staff in a report, as is required by Commission regulations.

Moreover, according to the Corps' draft 404(b)(1) analysis, the new Project redesign would ***increase*** the temporary disturbance on the site due to the construction of 50-foot roads for the installation of the underground utility line and

[57] Exhibit 302, Supplemental Staff Assessment, p.C.15-15.
[58] *Id*.
[59] *Id*.
[60] Exhibit 302, Supplemental Staff Assessment, p.C.15-25.

hydrogen pipelines.[61] Dr. Bowles' testimony explains that such disturbance is not temporary when the healing of soil surfaces can take hundreds or thousands of years in this arid desert environment.[62] However, Staff prepared no analysis of the impacts from these increased "temporary" disturbance areas.

D. THE COMMISSION CANNOT DETERMINE COMPLIANCE WITH LORS BECAUSE THE APPLICANT'S PROPOSED REDESIGNED PROJECT MAY BE REVISED BY THE U.S. EPA AND THE CORPS

Although the USACE has released its draft LEDPA for public comment, the Commission cannot determine whether the Applicant's newly proposed Project complies with LORS because there is no indication from the U.S. EPA, which asserted oversight over the Project, that the redesigned project complies with the Clean Water Act. Staff Counsel informed the Committee that this was the case at the hearing on July 27, 2010:

> MS. HOLMES: When we see the final LEDPA, then we will know what it is and we will at that point be able to ascertain whether there are differences that result in impacts that we haven't identified or different types of mitigation measures. It's not a legal issue, it will be a factual issue, and it's not one that we can really address until we see the final LEDPA.[63]

Furthermore, the draft LEDPA may change because the U.S. EPA raised significant concerns in comments on the Corps permit and on the SA/DEIS:

> The project proposes discharges of dredged or fill material that would eliminate 167 acres of jurisdictional desert streams tributary to the New River and the Salton Sea. As proposed, these discharges may result in substantial and unacceptable impacts to "aquatic resources of national importance" (ARNl). The streams at this project site perform critical hydrologic, biogeochemical and habitat functions directly affecting the integrity and functional condition of the New River and Salton Sea, both listed as impaired water bodies under the Clean Water Act (CWA) sect. 303(d). This letter identifies the permit action as a candidate for review by our respective headquarters pursuant to our agencies established procedures.[64]

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[61] Exhibit 129, pp. 24-25.
[62] Exhibit 478, p.9.
[63] Hearing Transcript of July 27, 2010, p. 122.
[64] Exhibit 498-J.

The U.S. EPA also specifically requested that the Corps evaluate an alternative that would limit the Project's power output to 300 Mw and would avoid all waters of the US.

> As part of determining the LEDPA, the FEIS should further justify the elimination of the 300 MW Phase I as a practicable alternative. Based on the information in the DEIS, it appears that the Phase I alternative may be practicable and less environmentally damaging to jurisdictional waters when compared to the proposed Project alternative. It is our understanding that the Applicant has a Power Purchase Agreement with SDG&E to provide 300 MW of power once on-line. The FElS should confirm that this is the case… As such, a single 300 MW plant would be considered an on-site less environmentally damaging, practicable alternative, pursuant to the Guidelines. Finally, the FElS should analyze a 300 MW alternative in a design configuration that avoids all impacts to Waters on-site.[65]

Despite the U.S. EPA's request, the Applicant made no effort to *reconfigure* a 300 Mw alternative to avoid all impacts to waters of the U.S. As a result, neither the Corps, the Applicant, or Commission Staff analyzed the *reconfigured* 300 Mw alternative specifically requested by the U.S. EPA.

Finally, although CURE disagrees that a 300 MW project is viable due to the Applicant's failure to identify a reliable water supply, the Corps determined that the overall project purpose could be met with a 300 Mw project. The Corps determined that the overall purpose of this Project is "[t]o provide a solar energy facility ranging in size from 300 Megawatts to 750 Megawatts in Imperial County, California."[66] The Corps' analysis concludes that the 300 Mw alternative is less environmentally damaging, meets the overall project purposes, and is logistically feasible. The reason that the Corps did not select a 300 Mw alternative as the LEDPA was because the Corps preliminarily determined that it "does not satisfy cost criteria to produce electric power at a price regulated utilities can pay." This is clearly rebutted by the Applicant's power purchase agreement with SDG&E in which the Applicant agrees to sell 300 Mw of power from the Project to the utility and there are no other PPAs.[67]

In sum, at this time, the Commission cannot determine whether the Project reduces significant impacts and complies with LORS. The U.S. EPA has veto authority over the Corps' Clean Water Act §404 permitting decisions pursuant to Clean Water Act § 404(c) and has specifically determined that the Project is a

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[65] www.energy.ca.gov/sitingcases/solartwo/documents/others/2010-06-03_US_EPA_Comments_re_DEIS_TN-56988.pdf
[66] Exhibit 129.
[67] Exhibit 499-M.

candidate for its review of whether impacts to waters of the US have been reduced to the extent practicable. Until this review is complete and Staff revises its analysis, the Commission cannot make required findings under CEQA and the Warren-Alquist Act.

V. SOIL AND WATER RESOURCES; THE PROJECT WOULD RESULT IN SIGNIFICANT UNMITIGATED IMPACTS TO THE NEW RIVER, SALTON SEA AND THE SALTON SEA WATERSHED

In its review and approval of the Project, the Commission must fulfill the requirements of the Warren-Alquist Act and CEQA. The Warren-Alquist Act requires a finding that a project complies with all LORS. CEQA requires that all potential environmental impacts be analyzed and that all significant impacts be mitigated, including impacts from mitigation measures themselves. The proposed Project fails on both counts. The environmental review is inadequate and cannot be relied on by the Commission in approving the Project. Further, the Commission's approval of the Project would violate the Warren-Alquist Act.

The Commission cannot approve the Project because there are significant unanalyzed and unmitigated offsite downstream impacts to the New River, the Salton Sea and the Salton Sea watershed. In some instances, Staff's assessments failed to meet the basic requirements of CEQA. For example, because Staff's assessments failed to establish an accurate baseline for soil surfaces in the watershed, Staff's conclusions that significant offsite impacts cannot be mitigated is unsupported. Consequently, if the Commission approved the Project, the Commission would violate CEQA. In addition, Staff's assessments completely failed to analyze potentially significant impacts to the New River, the Salton Sea and the Salton Sea watershed. No mitigation for these impacts was ever proposed or discussed. Staff's assessments failed to adequately analyze and mitigate significant impacts to the Salton Sea and its watershed, and therefore failed to satisfy the basic requirements of CEQA.

Finally, Staff's analysis did not analyze how the Project's offsite sedimentation impacts would violate the total maximum daily loads ("TMDL") that have been developed for the New River, Imperial Valley drains and Salton Sea, pursuant to the Clean Water Act. Until this analysis is done, the Commission cannot make a finding regarding whether the Project complies with LORS.

A. STAFF FAILED TO DETERMINE THE ENVIRONMENTAL BASELINE FOR CRYPTOBIOTIC CRUSTS, DESERT PAVEMENT

The environmental setting, or baseline, refers to the conditions on the ground and is a starting point to measure whether a proposed project may

cause a significant environmental impact. CEQA defines "baseline" as the physical environment as it exists at the time CEQA review is commenced. (14 Cal. Code Reg. §15125(a); *Riverwatch v. County of San Diego* (1999) 76 Cal.App.4th 1428, 1453.) "An EIR must focus on impacts to the existing environment, not hypothetical situations." (*County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 952.)

> If the description of the environmental setting of the project site and surrounding area is inaccurate, incomplete or misleading, the EIR does not comply with CEQA...Without accurate and complete information pertaining to the setting of the project and surrounding uses, it cannot be found that the FEIR adequately investigated and discussed the environmental impacts of the development project.

(*Cadiz Land Co., Inc. v. Rail Cycle, L.P.* (2000) 83 Cal.App.4th 74, 87, quoting and citing *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus*, (1994) 27 Cal.App.4th 713, 721-722, 729.)

Describing the environmental setting is critical to an accurate, meaningful evaluation of environmental impacts. The importance of having a stable, finite, fixed environmental setting for purposes of an environmental analysis was recognized decades ago. (*County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185.) Today, the courts are clear that, "[b]efore the impacts of a project can be assessed and mitigation measures considered, an [environmental review document] must describe the existing environment. It is only against this baseline that any significant environmental effects can be determined." (*County of Amador, supra,* 76 Cal.App.4th at 952.) In fact, it is a central concept of CEQA, widely accepted by the courts, that the significance of a project's impacts cannot be measured unless the EIR first establishes the actual physical conditions on the property. In other words, ***baseline determination is the first rather than the last step in the environmental review process***. (*Save Our Peninsula Committee v. Monterey Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 125.)

Staff's failure to accurately describe the existing soil conditions on the Project site – a critical and unique resource in this desert environment – violates the requirements of CEQA. It is undisputed that desert pavement and cryptobiotic crusts occur on the Project site.[68] Additionally, there is undisputed expert testimony by Dr. Christopher Bowles and Chris Campbell that desert pavement and cryptobiotic crusts play an important role in the hydrology and sedimentation processes on the Project site.[69] Desert pavement controls infiltration, runoff, and transmission losses.[70] Cryptobiotic crusts stabilize sand and dirt, promote moisture

[68] Exhibit 302, p. C.2-119.
[69] Exhibit 478.
[70] *Id.*

retention, and fix atmospheric nitrogen.[71] Wind erosion is substantially more prevalent with disruption of the crust and pavement. [72]

Both Staff and the Applicant admit that they did not establish the existing amount of desert pavement and cyptobiotic crusts on the Project site that would be essential to evaluating significant impacts.[73] Staff's analysis acknowledges that, throughout the region, large expanses of nearly vegetation-free desert pavement are a characteristic element.[74] Dr. Bowles explained the need for this baseline information so that the amount of desert pavement and crusts could be incorporated into the modeling of the Project's likely environmental impacts:

> Failure to undertake additional surveys, data collection and analysis, and design of appropriate mitigation actions as described below will result in significant unmitigated impacts to the desert pavement and cryptobiotic soils, with corresponding dramatic increases in sediment and wind erosion, and significant impacts to downstream receiving waters.[75]

According to Dr. Bowles, determining the existing amount of desert pavement and cryptobiotic crust on the Project site should have been one of the first surveys done to establish the baseline conditions on the Project site.[76] Staff should have then factored the existing amount of desert pavement and cryptobiotic crust on the Project site into its analysis because it would result in corresponding increases in sediment and wind erosion and significant impacts to downstream waters that must be analyzed. Without an accurate description of the environmental setting, these potentially significant impacts have not been analyzed or mitigated. By failing to establish the baseline environmental setting, Staff's assessment failed to satisfy CEQA's requirement that the baseline be determined as the ***first*** step in the environmental review process. Consequently, if the Commission approves the Project as proposed, the Commission will violate CEQA as a matter of law. The Commission should require that the Applicant conduct surveys for the quantity, quality and type of desert pavement and cryptobiotic crust on the Project site and incorporate the information about this baseline condition into the analysis of the Project's impacts and mitigation.

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[71] *Id*.
[72] *Id*.
[73] Hearing Transcript, July 26, 2010, pp. 323 and 349.
[74] Exhibit 302, p. C.13-4.
[75] Exhibit 478, p.16.
[76] Hearing Transcript, July 26, 2010, pp. 357.

B. STAFF FAILED TO ANALYZE THE PROJECT'S SIGNIFICANT UNMITIGATED IMPACTS ON THE NEW RIVER AND SALTON SEA WATERSHED AND COMPLIANCE WITH TMDLS UNDER THE CLEAN WATER ACT

The U.S. EPA determined that the Project site would affect "aquatic resources of national importance" and could significantly impact the Salton Sea watershed.[77] Despite this warning, Commission Staff largely failed to analyze any of the Project impacts beyond the fence line or immediate pipeline or transmission right-of-way. Dr. Bowles testified that soluble salts from soils on the project site will end up in the Salton Sea.[78] The Staff did not analyze this impact. Moreover, the Staff analysis did not analyze how the Project's offsite sedimentation impacts would violate the total maximum daily loads ("TMDL") that have been developed for the New River, Imperial Valley drains and Salton Sea.

1. SIGNIFICANT UNMITIGATED AND UNANALYZED IMPACTS TO THE NEW RIVER, SALTON SEA AND THE WATERSHED

According to the testimony of Dr. Bowles, the 6,500-acre area proposed for Project development is a "dynamic system" with ephemeral washes or channels that are highly susceptible to widening and channel relocation.[79] The stream contours change after major storms and a significant amount of sediment is transported through the system during these events.[80] Most of the channels tend to have deep sediment deposits composed of sand and gravel with widely scattered vegetation growing within the channel and its floodplain.[81] Dr. Bowles explained that the Applicant's one-dimensional modeling and analysis was inadequate to show the dynamic processes at work on the Project site.[82]

Dr. Bowles further testified that the installation of SunCatchers would cause deeper incision in streams and heightened sediment transport, resulting in sediment and salinity impacts to the New River, Imperial Drains and Salton Sea watershed.[83] According to Dr. Bowles, these impacts were not adequately analyzed by the Applicant or Staff. Additionally, Dr. Bowles testified that construction, maintenance and grading at the Project site will destroy desert pavement and cryptobiotic crust, features on the site that naturally prevent soil erosion and sedimentation. The destruction of these natural soil stabilizers will impact air quality and water quality on and off the Project site.

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[77] Exhibit 498-J.
[78] Hearing Transcript, July 26, 2010, pp. 389.
[79] Hearing Transcript of July 26, 2010, pp. 360-361.
[80] Id.
[81] Id.
[82] Exhibit 478.
[83] Exhibits 478 and 499-A.

Staff concluded that the [Applicant's] calculations and assumptions used to evaluate potential storm water, geomorphic, and sedimentation impacts were **imprecise and had limitations and uncertainties** associated with them.[84]

> Given the uncertainty associated with the calculations, the magnitude of potential impacts that could occur cannot be determined precisely without additional detailed numeric modeling of project effects. Based on an independent preliminary assessment by staff, staff has determined the proposed project could result in erosion and stream morphology impacts that would be significant. Conditions of Certification SOIL&WATER-1, SOIL&WATER-5, SOIL&WATER-7, and SOIL&WATER-10 have been developed that require development of best management practices and monitoring and reporting procedures to mitigate impacts related to flooding, erosion, sedimentation, and stream morphological changes. These conditions of certification would minimize impacts**, but due to the uncertainty associated with the existing analysis, impacts related to erosion, sedimentation and stream morphological changes are considered significant after mitigation.**[85]

Although Staff concluded the impacts were significant after mitigation, Staff did not evaluate nor consider possible mitigation for the likely extent of the Project's impacts extending off the Project site and into the Salton Sea watershed.

The Staff Assessment does hint that there will be offsite impacts to the Salton Sea watershed, but never analyzes mitigation for these impacts:

> "The result of surface disturbances and the presence of SunCatchers in the flow path could be long-term erosional degradation of the soil surface within the SunCatcher array and in the intervening undisturbed areas, as well as increased sediment discharge offsite across Dunaway Road and toward the east where the Westside Main Canal and New River flow."[86]

However, Staff did not provide support for a conclusion that the Project would not result in offsite downstream impacts to the Salton Sea watershed.

Conversely, CURE provided evidence and testimony providing substantial evidence that the Project will cause significant impacts to offsite resources in the Salton Sea watershed. The U.S. EPA determined that the Project site would affect "aquatic resources of national importance" and could significantly impact the Salton

[84] Exhibit 302, pp. ES 34-35.
[85] Exhibit 302, pp. ES 34-35.
[86] Exhibit 302, p. C.7-32.

Sea watershed.[87] Dr. Bowles testified that soluble salts from soils on the project site will end up in the Salton Sea.[88] Despite this evidence, Staff failed to address the potentially significant impacts and identified no mitigation for these impacts was ever proposed or discussed. Consequently, until this analysis is done, the Commission cannot make a finding "that changes or alterations have been required in, or incorporated into, the project" to avoid or lessen a significant environmental impact, as required by CEQA. (Pub. Res. Code § 21081(a); 14 Cal. Code Reg. § 15091(a).

2. FAILURE TO ANALYZE COMPLIANCE WITH TMDLS ESTABLISHED THROUGH THE CLEAN WATER ACT

The goal of the Clean Water Act ("CWA") is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." (33 U.S.C §1251(a).) Under section 303(d) of the CWA, states are required to develop lists of impaired waters. These are waters for which technology-based regulations and other required controls are not stringent enough to meet applicable water quality standards. The CWA requires that states establish priority rankings for waters on the lists and develop total maximum daily loads ("TMDLs") for these waters. A TMDL defines how much of a "pollutant" a water body can tolerate on a daily basis.

Both the New River and the Salton Sea are considered "impaired" waters. Major "pollutants" impairing these waters are silt, pesticides, salts, nutrients (mainly phosphorus), and other pollutants. Dr. Bowles testified that soluble salts from soils on the Project site will end up in the Salton Sea.[89] Some of these pollutants can be addressed by ensuring that runoff from projects will not result in further exceedances of TMDLs. Other pollutants, such as salt, cannot be addressed by TMDLs, but must be addressed on a case-by-case basis.

Staff's analysis did not analyze how the Project's offsite sedimentation impacts would violate the TMDLs that have been and are being developed for the New River, Imperial Valley drains and the Salton Sea, pursuant to the CWA.[90] Until this analysis is done, the Commission cannot make a finding regarding whether the Project complies with LORS.

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[87] Exhibit 498-J.
[88] Hearing Transcript, July 26, 2010, pp. 389.
[89] Hearing Transcript, July 26, 2010, pp. 389.
[90] Exhibit 478, p.7.

VI. BIOLOGICAL RESOURCES; THE PROJECT WOULD RESULT IN SIGNIFICANT UNMITIGATED IMPACTS TO WILDLIFE; STAFF FAILED TO DEMONSTRATE THAT PROPOSED COMPENSATORY MITIGATION FOR SIGNIFICANT IMPACTS WILL BE FEASIBLE, EFFECTIVE AND CAPABLE OF IMPLEMENTATION

The Project will impact approximately 6,500 acres of land that serves as valuable habitat and movement corridors for numerous species, including a distinct population segment of peninsular bighorn sheep ("PBHS"), an endangered species under the Federal Endangered Species Act ("FESA") and a fully protected species in California; the flat-tailed horned lizard ("FTHL"), a species proposed for listing under FESA; the Colorado desert fringe-toed lizard, a California species of special concern; a number of rare plants; burrowing owls; and other sensitive natural communities and associations. Additionally, the Project area provides habitat for golden eagle, a fully protected species under the Bald and Golden Eagle Protection Act. The Applicant has admitted that the Project would destroy most of the habitat for these species on the Project site.

CEQA requires an agency to determine whether a Project will cause a significant impact because it will "substantially reduce the number or restrict the range of an endangered, rare, or threatened species." (14 Cal. Code Reg. §16065(a)(1).) CEQA requires that a lead agency describe the physical environmental conditions in the vicinity of the project, as they exist at the time environmental review commences. (14 Cal. Code Reg. § 15125(a).) The description of the environmental setting constitutes the baseline physical conditions by which a lead agency must assess the significance of a project's impacts. (*Id*.) CEQA then requires an analysis of direct, indirect, and cumulative impacts. (Pub. Res. Code §§ 21083, 21065, 21065.3.) CEQA also prohibits agencies from approving projects "if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects." (Pub. Res. Code §§ 21002, 21081.) CEQA requires agencies to "avoid or minimize environmental damage where feasible." (14 Cal. Code Reg. § 15021(a).)

A. THE SUPPLEMENTAL STAFF ASSESSMENT FAILED TO ESTABLISH THE BASELINE FOR GOLDEN EAGLES AND BURROWING OWLS ON THE PROJECT SITE

The Project area provides habitat for golden eagle and western burrowing owl. Despite the presence of habitat for these species, no surveys were conducted for either species in and around the proposed Project area. Without this information, Staff is unable to analyze potentially significant impacts and unable to identify appropriate mitigation and, most importantly, the Commission is unable to make findings regarding the Project's significant impacts on the species and its habitat.

The environmental setting, or baseline, refers to the conditions on the ground and is a starting point to measure whether a proposed project may cause a significant environmental impact. CEQA defines "baseline" as the physical environment as it exists at the time CEQA review is commenced. (14 Cal. Code Reg. §15125(a); *Riverwatch v. County of San Diego* (1999) 76 Cal.App.4th 1428, 1453.)

Staff failed to establish the baseline for analysis of impacts to burrowing owl and golden eagle from the Project. Information on golden eagle and burrowing owl presence in the Project area was achieved through incidental observations. Although protocols exist for both burrowing owl and golden eagle surveys, protocol surveys (or any focused surveys) for burrowing owls or golden eagle were never conducted. Failure to conduct protocol surveys is a violation of CEC siting regulation Appendix B (g)(13)(D)(i). This regulation requires the applicant to follow protocol surveys if such protocols exist. The California Burrowing Owl Consortium Protocol and Mitigation Guidelines warn lead agencies against deferring impact evaluations, such as has been done for this Project.

Staff proposed to abdicate the Commission's responsibility to evaluate potentially significant impacts under CEQA and ensure compliance with LORS. Surveys for golden eagles are ongoing and Commission Staff asserted that BLM will incorporate the results of golden eagle surveys that are currently underway into their analysis.[91] Commission Staff attempted to avoid the survey requirements for golden eagle by agreeing to accept eagle surveys conducted for the Sunrise Powerlink project in lieu of the Imperial Valley Project Applicant conducting its own. However, **Staff never received or reviewed the results of these other surveys and therefore, the Staff's assessment does not consider these results.** Thus, for golden eagle, it isn't clear what Staff is proposing. Although Staff admitted that no survey report had been provided, Staff has not proposed to wait for these results prior to project approval. Consequently, by deferring establishment of the baseline environmental setting for golden eagle until after Project approval, Staff failed to satisfy CEQA's requirement that the baseline be determined as the first step in the environmental review process. If the Commission approves the Project as proposed, the Commission will violate CEQA as a matter of law and cannot certify that the Project is consistent with the Bald and Golden Eagle Protection Act.

For burrowing owl, Staff allowed the requirement to conduct burrowing owl surveys to "slip through the cracks" and assumed that any mitigation for FTHL would also serve as mitigation for burrowing owl.[92] Staff also proposed that burrowing owl surveys and monitoring of burrowing owl burrows within 500 feet of

[91] Exhibit 302, p. C.2-97.
[92] Hearing Transcript, July 27, 2010, pp. 267.

construction activity be conducted ***after*** Project approval. Consequently, by deferring establishment of the baseline environmental setting for burrowing owl until after Project approval, Staff again failed to satisfy CEQA's requirement that the baseline be determined as the first step in the environmental review process.

B. THE PROJECT WILL RESULT IN UNMITIGATED SIGNIFICANT IMPACTS TO FLAT TAILED HORNED LIZARD

"The EIR must demonstrate that the significant environmental impacts of the proposed project were adequately investigated and discussed and it must permit the significant effects of the project to be considered in the full environmental context." (*Cadiz Land Co.*, *supra*, 83 Cal.App.4th at p. 92.) CEQA guidelines require "a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences . . . [t]he courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure." (*County of Amador*, *supra*, 76 Cal.App.4th at 954, quoting CEQA Guidelines § 15151; *see also Berkeley Keep Jets Over the Bay Com. v. Bd. of Port Commrs.* (2001) 91 Cal.App.4th 1344, 1367.) Only "where substantial evidence supports the approving agency's conclusion that mitigation measures will be effective, courts will uphold such measures against attacks based on their alleged inadequacy." (*Sacramento Old City Assn. v. City Council* (1991) 229 Cal.App.3d 1011, 1027 (*SOCA*), citing *Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal.3d 376, 407.)

The proposed Project site is within an area of FTHL habitat that is relatively undisturbed and that provides generally continuous connectivity of natural community types from the southern extent of the Yuha Desert Management Area ("MA") to the northern extent of the West Mesa Management Area. Given the configuration of the Project, and assuming an edge effect to 450 m, CURE's expert, Scott Cashen, estimated that the Project will have an indirect, adverse and unanalyzed impact on 2,800 acres outside of the Project boundaries and extending into the Yuha Desert Management Area, thus reducing its value as a reserve.

The Staff's assessment provides cursory analyses of these significant impacts on connectivity between two management areas for FTHL. Moreover, Staff provides no compensatory mitigation for the Project's significant indirect impacts on 2,800 acres outside of the Project boundaries. Thus, there is not substantial evidence in the record that Staff's proposed mitigation for impacts to FTHL off the Project site will be effectively mitigated.

C. STAFF ASSESSMENT FAILS TO ANALYZE IMPACTS TO MIGRATING BIRDS AND SALTON SEA ECOSYSTEM

Staff fails to analyze potentially significant impacts to biological resources in the New River or Salton Sea. Given the Project's proximity to these waterbodies and their importance to the United States and the State of California, Staff's disregard for these resources is inexcusable. Because Staff fails to analyze the potentially significant impacts, Staff fails to identify any mitigation to reduce impacts to less than significant.

The Salton Sea ecosystem is an extremely valuable resource for resident and migratory birds, including a large number of threatened, endangered, and other special-status species.[93] Increasing salinity and declining water quality have eliminated the marine fish species, and, with inflows that will be diminishing in the future, threaten the continued ability of the Salton Sea ecosystem to support birds and other wildlife.[94] Reduced inflows will also reduce the physical size of the Salton Sea and expose lakebed sediments (playa) that, with the prevailing winds in the area, could exacerbate dust problems for an already degraded air basin.[95]

River mouths, particularly in the southern part of the Salton Sea, provide areas of reduced salinity and higher dissolved oxygen.[96] These estuarine areas are relatively small, yet very productive, and they routinely support higher concentrations of birds than surrounding areas.[97] The size of the estuarine areas is influenced primarily by the amount of inflow. The New and Alamo rivers, which constitute nearly 80 percent of the inflow to the Salton Sea, support the largest estuarine areas.[98]

The Project will impact the Salton Sea in two ways, one from runoff laden with sediment and soluble salts from the Project site and two, from diversion of water at the SWWTF.[99] The ephemeral washes on the western edge of the project site drain towards Coyote Wash north of the project site.[100] The ephemeral washes on the eastern half of the project site drain east across the project site to the Westside Main Canal. The Westside Main Canal and Coyote Wash are tributaries to the New River and eventually to the Salton Sea. The diversion of effluent from the SWWTF would compound the adverse impacts on the Salton Sea watershed.

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[93] Exhibit 429.
[94] *Id.*
[95] *Id.*
[96] *Id.*
[97] *Id.*
[98] *Id.*
[99] *Id.*
[100] *Id.*

Despite this substantial evidence of potentially significant impacts on the Salton Sea, Staff failed to conduct an analysis of the impacts. The Project's direct, indirect and cumulative impacts on the Salton Sea watershed must be analyzed and mitigated in order for the Commission to make a finding regarding compliance with CEQA.

D. STAFF ASSESSMENT FAILS TO MITIGATE POTENTIALLY SIGNIFICANT IMPACTS TO PENINSULAR BIGHORN SHEEP

The Applicant observed bighorn sheep on the project site in March, 2009.[101]

The Project's impacts on PBHS habitat trigger the "incidental take" provisions of FESA. However, due to the PBHS being listed as a fully protected species in California, take cannot be authorized for this species and, instead, the species must be avoided.[102]

PBHS occupy a number of areas surrounding the project site including (a) the area known as the Coyote Mountains immediately west of the project site and north of Interstate Highway 8, which supports a population of between 45 and 60 individuals; (b) the Fish Creek Mountains immediately north of the project site that are occupied by PBHS on at least a seasonal basis; (c) the Sierra Juarez located immediately south of the Jacumba Mountains near the project site; (d) the Sierra Cucapa, located immediately southeast of the project site; and (e) a portion of the Jacumba Mountains immediately south of Interstate 8.[103] These mountainous areas have been designated as the Carrizo Mountains/Tierra Blanca Mountains/Coyote Mountains Recovery Area ("CTCRA") in the Recovery Plan for PBHS in the Peninsular Ranges. According to bighorn expert Dr. Vern Bleich, the project site is likely to be part of an important movement corridor in this Recovery Area.[104] Dr. Bleich testified that development of the project may result in direct impacts to PBHS habitat linkage(s) in this recovery area.

The Applicant observed bighorn sheep on the project site during March, 2009. The Applicant reported that the sheep were "... following the wash in a northwest to southeast direction."[105] The Applicant then suggested that fencing be installed on the project site to "preclude the apparent transitory use of the proposed developed portions of the site by PBHS."

Staff concluded that Project impacts to a potential movement corridor for bighorn sheep through the Project site are speculative and are considered by Staff

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[101] Exhibit 302, p. C.2-34.
[102] Exhibit 302, p. C.2-95.
[103] Exhibit 400.
[104] *Id.*
[105] Exhibit 17.

to be less than significant. Staff relies upon a lack of telemetry data or road-kills in the vicinity of the Project site, as well as proximity of the Project site to flat terrain and the Yuha desert.[106]

CURE's witness, Dr. Vern Bleich, a renowned expert on bighorn sheep with over 37 years of experience studying the species, provided substantial evidence that the PBHS need to move through desert flats, such as the Project site, to access more typical areas occupied by bighorn sheep.[107] Dr. Bleich also testified that the value of such movements through intermountain areas to metapopulation function and persistence is significant.[108] Further, the PBHS photographed on the project site were female, and Dr. Bleich testified that female bighorn sheep are inherently conservative in their behavior and are slow to colonize vacant areas, so the presence of female PBHS on the project site suggests those sheep were moving from one area to another within the CTCRA.

In January, 2010, bighorn sheep sign was again observed near the Project site, providing additional evidence that the area is traversed by bighorn sheep that may be moving through the Project site and contributing to metapopulation function within the CTCRA. Thus, there is substantial evidence that development of the Project will pose a significant impact to PBHS movement within the CTCRA. Staff failed to analyze and mitigate this significant impact and thus the Commission cannot make the required findings that Project impacts are less than significant.

E. APPLICANT'S PROPOSED TAMARASK REMOVAL AS MITIGATION MAY RESULT IN UNANALYZED SIGNIFICANT IMPACTS

The Applicant suggested that removal of Tamarisk in Carrizo marsh would mitigate impacts to PBHS foraging habitat. CURE presented expert testimony that this mitigation strategy could result in potentially significant indirect impacts to Southwestern Willow Flycatcher and the Least Bell's Vireo.[109] These impacts were not analyzed by the Applicant or Staff.

Before undertaking a project, the lead agency must assess the environmental impacts of all reasonably foreseeable phases and components of a project. (*Laurel Heights Improvement Assn., supra,* 47 Cal.3d at p. 396-97.) CEQA requires that all potential impacts be analyzed and all significant impacts be mitigated, ***including impacts from mitigation measures themselves***. Where mitigation measures

[106] Exhibit 302, p. C.2-211.
[107] Exhibit 400.
[108] *Id.*
[109] Hearing Transcript, July 27, 2010, pp. 322 and 323.

would, themselves, cause significant environmental impacts, CEQA requires an evaluation of those secondary (indirect) impacts. (14 Cal. Code Reg. § 15064(d).)

Staff must address potentially significant impacts, or explain why the impact would be less than significant based on substantial evidence in the record. However, Staff failed to do so. Thus, as the record stands, the Project's mitigation may result in potentially significant indirect impacts to Southwestern Willow Flycatcher and the Least Bell's Vireo.

VII. STAFF FAILED TO DEMONSTRATE THAT THE PROPOSED COMPENSATORY MITIGATION FOR IMPACTS TO SPECIAL-STATUS SPECIES AND THEIR HABITAT WILL BE FEASIBLE, EFFECTIVE AND CAPABLE OF IMPLEMENTATION

To mitigate significant impacts to FTHL, burrowing owl, golden eagle, American badger, and desert kit fox, Staff determined that the project owner should provide 6,619.9 acres of land as compensatory mitigation.[110] However, Staff provided no analysis and there is nothing more than pure speculation that unidentified lands that would mitigate impacts to FTHL can also serve as effective habitat compensation for burrowing owl and other significantly impacted species and their habitat.

CEQA requires the Commission to formulate mitigation measures to address identified impacts that are defined, feasible, effective, and capable of implementation. (14 Cal. Code Reg. § 15126.4(a)(1)(B); *Federation of Hillside and Canyon Associations v. City of Los Angeles* (2000) 83 Cal.App.4th 1259, 1262.) The CESA and ESA also require formulating effective mitigation that can be implemented. Under CESA, the CDFG may issue an incidental take permit that authorizes "take" of specified endangered or threatened plants or animals during the course of an otherwise lawful activity, so long as the holder of the permit "fully" mitigates the impacts. (Fish & Game Code §§ 2080, 2081(b)(2).) The measures required to fully mitigate impacts to species "shall be capable of successful implementation." (*Id.* at § 2081(b)(2).) Under the federal ESA,

> Each Federal agency shall, in consultation with and with the assistance of the Secretary [of Commerce or the Interior], insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary . . . to be critical. . . .

[110] Exhibit 302, p. C.2-168.

(ESA § 7(a)(2); 16 U.S.C. § 1536(a)(2).) Section 9 of the federal ESA prohibits "take" (e.g., harm, harassment, pursuit, injury, kill) of federally listed wildlife. "Harm" includes habitat modification or degradation that kills or injures listed wildlife. Take incidental to otherwise lawful activities can be authorized, after consultation with the U.S. Fish and Wildlife Service ("USFWS") under section 7. (ESA § 7(o)(2); 16 U.S.C. § 1536(o)(2).) The "Incidental Take Statement" issued by the USFWS specifies, among other things, those reasonable and prudent measures that the [agency] considers necessary or appropriate to minimize such impact." (ESA § 7(b)(4); 16 U.S.C. § 1536(b)(4).)

Staff's proposed mitigation requiring the acquisition of approximately 6,619.9 acres of land to mitigate significant impacts to FTHL, burrowing owl, golden eagle, American badger, and desert kit fox[111] is infeasible, ineffective and incapable of implementation. The record does not contain substantial evidence showing that the proposed acquisition of compensation lands can be implemented or will be feasible or effective.

Rather, substantial evidence shows that in light of the surge of immense solar power projects throughout the region, it is simply unrealistic to expect that the Applicant will be able to ***acquire over 6,500 acres of equivalent or better habitat*** to compensate for the destruction of habitat to numerous species that this Project will cause. Compensation land for the Project has not been identified.

> MS. MILES: And have you evaluated the lands that are potentially -- that you believe are going to be acquired?
>
> MS. NISHIDA: No.[112]

There is ***no*** evidence in the record that this substantial amount of privately-owned acreage of equivalent or better habitat function and value for all of the impacted species is available for purchase. In light of the current wave of renewable energy projects being proposed within the region, it is questionable that this vast amount of suitable habitat acreage can be acquired.

Proposing mitigation that requires the acquisition of suitable habitat for several species without determining whether such habitat is available and without limiting physical changes to the environment prior to habitat acquisition is a form of improper deferral of mitigation. Proposing mitigation without more of an effort to ensure the mitigation is adequate and will be implemented as advertised is a form of improper deferral of mitigation. (*Defend the Bay v. City of Irvine* (2004) 119 Cal.App.4th 1261, 1275, citing *Gentry v. City of Murrieta* (1995) 36 Cal.App.4th

[111] Exhibit 302, p. C.2-168.
[112] Hearing Transcript, July 27, 2010, p. 267.

1359, 1396-1397.) The details of mitigation may only be deferred until after Project approval in limited circumstances. (*San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 670-671, quoting *Endangered Habitats League Inc. v. County of Orange* (2005) 131 Cal.App.4th 777, 793.) Deferral is permissible only where the adopted mitigation: (1) commits the agency to a ***realistic performance standard or criterion*** that will ***ensure the mitigation of the significant effect***; and (2) disallows the occurrence of physical changes to the environment unless the performance standard is or will be satisfied. (See Remy et al., *Guide to the California Environmental Quality Act* (11th ed. 2007), p. 551.)

Staff's proposed compensation land scheme does not satisfy either of the above requirements. First, the proposal is unrealistic because it demands the availability of over 6,500 acres of habitat for numerous species equal to or better in quality than that of the Project site. As discussed above, given the immense number of acres slated for other projects in the region that will also require compensation lands, it is unrealistic to simply assume that there is enough suitable habitat available for all of the proposed projects.

The compensation land proposal is also unrealistic and fails to ensure that significant impacts will be mitigated because Staff assumes, without any substantial evidence, that whatever land is acquired will contain suitable habitat for all of the impacted species. While Staff's conditions do call for suitable FTHL habitat, the conditions do not require that compensation lands provide suitable habitat for the many other species for which the compensation lands will allegedly provide mitigation.

> MS. MILES: Are you requiring that the land purchased have habitat for those other species, that there be some confirmation that that land have habitat for the other species?
>
> MS. NISHIDA: According to the -- to the condition, it's mostly geared towards Flat Tailed Horned Lizard habitat.
>
> MS. MILES: So you'd be satisfied if you found out that the land actually did not contain habitat that would meet the needs of the other species?
>
> MS. NISHIDA: We're assuming that it probably will contain that habitat.
>
> MS. MILES: And what do you base your assumption on?

> MS. NISHIDA: Just on the -- the habitat that the project site is located on, you know, we figure that there's going to be a whole lot of things that utilize that habitat, and we figure that there's going to be, you know, any lands got in compensation will probably also support other species as well.
>
> MS. MILES: And have you evaluated the lands that are potentially -- that you believe are going to be acquired?
>
> MS. NISHIDA: No.[113]

While Staff hopes that there will be "a whole lot of things that utilize that habitat," Staff has no evidence that that its hopes will be realized. Fortunately, CEQA requires more. The Project will significantly impact numerous special-status species and Staff failed to provide substantial evidence that its proposal for the acquisition of lands will in fact mitigate those impacts. Thus, Staff's proposed conditions are unrealistic and fail to ensure the Project's significant impacts to several special-status species will be mitigated.

Further, Staff's proposal does not include a "no net loss" performance standard and does not include back-up provisions that would require alternative mitigation in the event habitat acquisition is not feasible. It also allows physical development to proceed before the Applicant has demonstrated that suitable habitat can be acquired as mitigation for Project impacts.[114] Because there are numerous pending applications for immense solar thermal projects in the area, and these proposed projects will also impact habitat for special-status species, Staff must specifically address the feasibility of acquiring the compensatory habitat required to mitigate significant impacts to numerous species caused by this Project.

Without substantial evidence concerning the effectiveness of the proposed compensation land mitigation, the Commission cannot make required findings. Because the record does not contain substantial evidence supporting the conclusion that mitigation through the acquisition of vast acreages of compensation land is feasible and is capable of implementation, the Commission cannot find "that changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the effect..." (Pub. Res. Code § 21081(a); 14 Cal. Code Reg. § 15091(a).) Hopes do not make it so, and do not make it legal.

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[113] Hearing Transcript, July 27, 2010, p. 267.
[114] Exhibit 302 p. C.2-175.

VIII. CONCLUSION

The Commission cannot approve the Project as proposed. Until the Applicant can provide a permitted, reliable, long-term water supply and a clear description of the Project for which it seeks a license, the Commission should suspend this proceeding. Further, if the Commission approves the Project as proposed, the Commission will violate CEQA and the Warren-Alquist Act.

Dated: August 11, 2010

Respectfully submitted,

_____/s/_____

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STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the Imperial Valley Solar Project (formerly known as SES Solar Two)	Docket No. 08-AFC-5

PROOF OF SERVICE

I, Bonnie Heeley, declare that on August 11, 2010, I served and filed copies of the attached **OPENING BRIEF OF CALIFORNA UNIONS FOR RELIABLE ENERGY.** 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 http://www.energy.ca.gov/sitingcases/solartwo/Imperial_Valley_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 via email and by U.S. Mail with first-class postage thereon, fully prepaid and addressed as provided on the Proof of Service list to those addresses NOT marked "email preferred." An original paper copy and one electronic copy, mailed and emailed respectively, were sent to the Docket Office.

I declare under penalty of perjury that the foregoing is true and correct. Executed at South San Francisco, CA on August 11, 2010.

_____/s/_____
Bonnie Heeley

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STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the IMPERIAL VALLEY SOLAR PROJECT (formerly SES Solar Two)	Docket No. 08-AFC-5

REBUTTAL TESTIMONY OF CLAUDIA NISSLEY ON BEHALF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY ON CULTURAL RESOURCES

August 13, 2010

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I. Statement of Qualifications

The California Unions for Reliable Energy (CURE) retained my firm, C. Nissley Environmental Consultants, Inc. to review the cultural resources staff assessment for the Imperial Valley Solar Project and to assess compliance with CEQA, NEPA, and NHPA, Section 106. In addition to my qualifications enumerated below and my attached resume, I have an extensive background in California archaeology. I was fortunate to be able to work with Phil Wilke, the first scientist to study Lake Cahuilla and analyze the receding shorelines and associated fish traps (1978). As a result of this project and several others, I am intimately familiar with the cultural resources in the project area of southern California. My experience also includes teaching classes in CEQA and Section 106 of NHPA to staff for CA SHPO, California Department of Transportation, private contractors and energy corporations operating in CA.

My qualifications meet the Department of Interior Standards for Professional Qualifications in Archaeology and Cultural Anthropology. I have served both as an executive for the Advisory Council on Historic Preservation and as the Wyoming Governor appointed State Historic Preservation Officer. For the last twelve years, I have taught for the National Preservation Institute, the Falmouth Institute, and the American Bar Association's Continuing Legal Education in the area of Native American, cultural property and preservation law. I design and teach classes on the National Historic Preservation Act, National Environmental Protection Act, Consultation and Protection of American Indian Sacred Lands, Native American Graves Protection and Repatriation Act and the Archaeological Resources Protection Act. As a consultant for the last decade, my clients have included but are not limited to Environmental Protection Agency, General Services Administration, National Park Service, U.S. Fish and Wildlife Service, Minerals Management Service, U.S. Army Corps of Engineers, Navy, North Dakota, Wisconsin, Vermont, private energy corporations, and multiple American Indian tribes.

While with the Advisory Council as Director of the western office for 15 years, and as the WY SHPO for several years, I was responsible for oversight of federal agencies compliance with Section 106 of the National Historic Preservation Act for all of the states west of the Mississippi River and east of Japan. Approximately 75% of the cases involved American Indian tribes and their traditional cultural properties in aboriginal lands. My primary role was one of consultation, negotiation and resolution between the tribes, state and federal agencies and proposed development. I have written, reviewed and commented on thousands of documents containing determinations of eligibility and determinations of effect as required for the Section 106 process. I teach multiple classes on how to write agreement documents such as Programmatic Agreements, for resolution of adverse effects and programs or projects for development and management of cultural resources and have authored numerous Memorandum of Agreements and Programmatic Agreements.

II. Summary of Conclusions

My conclusion after reviewing the Staff Assessment, Supplemental Staff Assessment and Cultural Resources Technical Report for the Imperial Valley Solar Project is that the Commission Staff have not adequately identified the cultural resources on the Project site, determined the significance of the cultural resources on the Project site, assessed the impacts from the project on these resources or proposed adequate mitigation.

CEQA requires state agencies to identify the environmental impacts of a proposed project, determine if the impacts will be significant, and identify alternatives and mitigation measures that will substantially reduce or eliminate significant impacts to the environment (Staff Assessment 2010: C.3.3.3).

For cultural resources, the Staff Assessment identified five steps that the agency must follow:

1) Determine the geographic extent of the project area of analysis;

2) create an inventory of cultural resources within the area;

3) assess the historical significance of known resources;

4) assess the impacts of the project on eligible resources; and

5) resolve significant impacts on eligible resources.

Out of five steps, Commission Staff has admittedly undertaken only two, and even the analysis completed for the first two steps is legally inadequate.

Although the Staff Assessment endeavors to address step one (define project area of analysis), the definition of the geographic area is incomplete. Commission Staff define the project area of analysis too narrowly and do not take into account the full range of potential indirect and cumulative significant impacts.

The Staff analysis has also begun to undertake step two (inventory of the cultural resources), however the inventory is too narrow in scope and only addresses surface archaeological sites and a portion of the historic built environment. The Staff has not undertaken any inventory of subsurface resources, although there is ample evidence that subsurface resources will be discovered and may be extensive and significant. Finally, the provisions for mitigation of project impacts are wholly inadequate. The only mitigation proposed is Condition of Certification CUL-1, which simply defers the remainder of step two and the following three steps until after project approval. The deferral of the completion of step two and the remaining three steps violates CEQA.

III. Failure to Follow Standard Archaeological Practice for CEQA Compliance and Implementation

As is widely understood, the CEQA Guidelines encourage state and local agencies to develop their own implementation procedures for regulatory compliance. Although this permits some agency-specific latitude, such procedures must satisfy the CEQA requirement that "each significant environmental effect" be identified, and that the potential mitigation measures for each adverse effect must be discussed (CEQA Guidelines 15126.4(a)1).

CEQA lead agencies and agency staffs have both formally and informally adopted a set of standard archaeological procedures intended to comply with these requirements. For the preparation of a DEIR, the widely followed CEQA standard practice includes a Phase I archaeological survey (intensive site "inventory") and a Phase II test excavation and determination of significance. Final recommendations for the management of cultural resources are developed, and included in a DEIR, based on the results of these two procedures.

As is discussed below, these two procedures are necessary to develop appropriate mitigation measures for each identified adverse impact. Such measures will vary depending upon the nature of the specific resource and the significance values that these procedures identify. As the Supplemental Staff Assessment acknowledges, the Applicant's archaeological consultants have completed site inventories but not determinations of significance, based on test excavations that provide affirmative information concerning the size, integrity and nature of each cultural resource. Staff have not determined significance, and instead propose to defer this analysis until after the Project is approved.

The completion of a Phase II survey and determination of significance, as standard CEQA practice, represents the tacit acknowledgment that survey level data alone are inadequate for accurate significance determinations. That is, the completion of test excavations, as standard CEQA practice, reflects the well-known archaeological fact that surface evidence obtained during site surveys is at best incomplete and, at worst, may be entirely misleading.

Staff's justification for departing from CEQA standard practice, cites federal regulations (36 CFR 800.14b) that allow for the resolution of "complex" cultural resource project situations through the development of a Programmatic Agreement (PA), providing for site evaluations and mitigation measures after project certification.

Two points are important to emphasize in this regard:

(1) There is nothing complex about the Imperial Valley Project from the cultural resources survey perspective, especially relative to numerous CEQA regulated California land developments. In fact, a phase 1, 100% cultural resource survey has already been completed.

(2) The reason that Staff is not following the standard CEQA process for cultural resources analysis is for the sole purpose of meeting the needs of the Applicant. As the Supplemental Staff Assessment makes clear (C.3-158 – 159),

> "Energy Commission staff believes…that it is an unavoidable consequence of the accelerated schedule to which this licensing process has been and continues to be subject that there will have been insufficient time to develop a thoughtful and integrated cultural resource avoidance plan for the present configuration of the project area. The absence of formal recommendations and determinations on the historical significance of the entire inventory of cultural resources prior to a decision on the license application or prior to the onset of construction, should the project be approved, precludes the possibility of developing such a plan."

Whereas federal regulations allow for these kinds of data gaps and procedures, CEQA has no such dispensation for the gathering of cultural resource information and significance evaluations. CEQA instead requires that each potential adverse impact be identified, and appropriate mitigation measures be identified, described and considered by the agencies and the public prior to project approval.

Staff's analysis fails to acknowledge that the proposed Project has not complied with standard CEQA practice with respect to cultural resources.

IV. Analysis of Whole Categories of Resources Was Omitted or Incorrect

The Staff's 25% inventory failed to account for ethnohistoric landscapes, historical architecture, traditional cultural properties, historic buildings, landforms and sacred areas. The Applicant focused the survey effort almost exclusively on archeological resources. Further, the Staff Assessment overtly failed to analyze the potential cultural significance of landforms. Table 5, a summary of the geoarchaeological sensitivity of landforms, indicates that "rock outcrops" have no geoarchaeological sensitivity.

However, it is well documented that many landforms have ascribed value in a cultural context. Numerous state and national parks exist because the landforms for which they are designated are nationally or regional significant, e.g. Devil's Tower National Monument, also known as Bear Butte Lodge to tribes, and the City of Rocks National and State Park, known as a historic gathering place for wagon trains. The expressed bias overlooks the fact that what is significant is the human use of the landscape and associated environment over time. For example, the desert pavement and associated prehistoric cultural resources on the Project site are totally unique from a national perspective. There are no other geographic areas in the U.S. that had the types of cultural resources recorded in the project area. There are no less than eleven trail segments in the desert pavement identified within the project area. The trails evident in the desert pavement were created by thousands of steps of humans over time. At a recent BLM

sponsored meeting on the Programmatic Agreement, several tribal members stated they were extremely concerned about the destruction of the trail system. The Commission must evaluate the value of landforms in a cultural context.

Therefore, the legal requirements of a cultural resource analysis under CEQA, NEPA and Section 106 of the NHPA have not been fully met due to a limited and narrow field of collected cultural resources.

V. Failure to Identify Appropriate Mitigation for Significant Adverse Impacts

As noted above, appropriate mitigation measures for the Project's adverse impacts to each cultural resource have not been identified or considered and the formulation of these measures would occur in a future treatment plan drafted after project approval. CEQA Guidelines are explicit: "Preservation in place is the preferred manner of mitigating impacts to archaeological sites" (15126.4(b)2(A)).

The Staff Assessment acknowledges that CEQA's preferred mitigation for impacts to cultural resources (complete avoidance) will be a constrained and limited mitigation option once the Project is approved:

> "The schedules for the agency processes and the likely schedule for the implementation of the stipulations in the PA, while constraining the avoidance options for the action, as presently proposed, do not preclude the ability of the applicant, on an admittedly more limited scale, to avoid cultural resources in general or to practice preservation in place for individual archaeological resources."(Staff Assessment 2010: C.3.-154)

However, there are many cases where preservation in place is the only appropriate mitigation because of the nature of an archaeological site's significance values. A well-known recent example of this is provided by the U.S. Army Corps of Engineer's Playa Vista project, in the City of Los Angeles. In a fashion similar to the Imperial Valley Project, the Corps failed to require test excavations prior to project approval, instead assuming that a PA and archaeological data recovery would serve as the appropriate mitigation for a known archaeological site, following project approval. The result was the discovery, removal and therefore destruction, of an early 19th century Tongva-Gabrielino tribal cemetery containing 386 burials, at an archaeological cost of greater than $12 million.

Some of the prehistoric archaeological sites within the Project's area of potential impact appear to represent village sites and contain burials. Adequate determination of the appropriate mitigation measures for these and the other sites requires the identification of each site's significance values prior to project approval.

The Staff's proposed CEQA compliance, in this respect, is not based on the responsible stewardship and treatment of the cultural resources, but instead on the procedure that is most expedient for the Applicant.

VI. Staff Failed to Adequately Assess the Historical Significance of Known Resources

The staff assessment fails to comply with the Secretary of Interior Standards and Guidelines for Archeology and Historic Preservation, and as a result has failed to establish the context necessary to assess the historic significance of known resources. The Staff Assessment includes lengthy descriptions of the cultural setting and the identified cultural resources on the surface in the project area, however there is no link described between the cultural history of the geographic area and the identified 440 cultural resources. The link that is missing is historic context, "…an organized format that groups information about related historic properties based on a theme, geographic limits and chronological period. The historic context is the cornerstone of the planning process." (Secretary of Interior Standards and Guidelines for Archaeology and Historic Preservation 1980:5)

The Commission Staff did not identify a cultural context within which evaluations of significance and historic and/or prehistoric importance could be assessed. Staff also made no attempt to relate the identified resources to one another in terms of a cultural landscape. By simply identifying and listing the recorded resources, there is no cultural context within which the "important historic and cultural aspects of our national heritage" may be assessed in accordance with the Requirements of CEQA and Section 106 of NHPA.

For example, irrigation and subsequent farming in the southern California desert is a regional and nationally significant event that forever changed the economic and commerce model in this area of California. One sentence is devoted to the All-American Canal in the cultural setting section of the staff assessment. There are no less than seven canals and drainages briefly identified in the cultural resources inventory section. In accordance with the Secretary of Interior Standards, a historic context should be developed between the cultural setting and the historical significance of the identified irrigation system and how it relates to development in the project area in terms of farming and economic history. In order to comply with CEQA and Section 106 of NHPA, the historic context is necessary to be able to move from the required step of identification to the required step of evaluation of historical significance.

The CEC Staff must evaluate the historical significance of the identified resources to assess whether the project will cause a substantial adverse change in the significance of properties qualified for the California Register of Historical Resources (CRHR) and the National Register of Historic Places. Under both CEQA and NHPA, cultural resources must be evaluated to determine if they meet at least one of four specific criteria. The resource must also possess at

least one element of integrity of location, design, setting, materials, workmanship, feeling and association. This step of evaluation has not been done; therefore, an assessment of substantial adverse changes or adverse effects cannot yet be determined and the threshold of CEQA and NHPA cannot be met.

VII. Inappropriate Conditions of Certification

Staff's recommended Conditions of Certification CUL-1 essentially defers the remainder of the needed survey effort, the determination of significance of the resources and the formulation of mitigation, to the implementation of a Programmatic Agreement that proscribes the development of mitigation or "treatment plans" well after the Project is approved. The implied rationale for this extreme deferral of analysis and mitigation is to ensure that the Applicant can meet their funding timelines. This is a wholesale abandonment of the CEQA process.

Staff also relies on the incorrect rationale that the assessment could not have been done before Project approval. "The time required for formal evaluations of historic significance for the complete cultural resources inventory exceeds the statutory one-year licensing process" (C.3-107). This is simply not true. Had the Applicant presented complete and adequate surveys to the Commission at the data adequacy phase, as is required by Commission regulations, the determination of significance and formulation of mitigation could have been accomplished within the one year licensing process.

A "formal evaluation" of a cultural resource in Section 106 and 36 CFR Part 60 requires the federal agency to send the decision documents to the Keeper of the National Register in Washington D.C. for their concurrence or objection. The BLM makes the decisions and sends the documents to the SHPO. SHPO has 30 days to concur or object. This process requires much less time than one year. For example, I worked on a proposed reservoir project with 600 identified cultural resources located in the area to be inundated. The federal agency determined all 600 resources to be eligible for listing on the National Register; the SHPO agreed. The administrative paperwork was processed in less than a month. The remainder of the time prior to project approval was spent in consultation with all parties to determine what types of preservation and mitigation might be possible and acceptable. Thus, there is no valid or legal rationale for deferral of the analysis and mitigation until project approval.

Moreover, the type of PA selected for this project is for "complex and multiple undertakings." (36 CFR Section 800.14(b)(3).) This project is not complex nor are there multiple undertakings. With the available data, this approach is neither necessary nor appropriate, nor does it meet the intent of CEQA, NEPA or NHPA.

The Staff Assessment cites CEQA guidelines, "the formulation of mitigation measures should not be deferred until some future time. However, measures may specify performance standards which would mitigate the significant effect of the project…"(C.3.154). The Staff Assessment is not explicit in stating what constitutes the "performance standards" in the PA;

however, if one assumes they are the Historic Preservation Treatment Plan and/or the Historic Preservation Management Plan, neither plan meets any specificity with regard to measures which might mitigate the significant effects. The Treatment Plan simply outlines that historic properties should be avoided *whenever possible*, and otherwise significant effects should be minimized or some type of mitigation should be conducted. This approach is unacceptable when a 100% survey of archaeological resources is already completed and there has been adequate time to develop a meaningful agreement document with relevant and specific options for mitigation.

VIII. Staff Incorrectly Concludes Anza Trail Remnants Are Needed for NRHP Eligibility

The National Park Service, administrator for the Anza Trail, has expressed the position that the proposed project will significantly affect the historic integrity and character of the trail as well as the visual landscape. There is no mitigation measure that would diminish the significant impact of the project on this nationally significant historic trail. There is no doubt that the project will affect the setting, feeling and association of the trail – those characteristics that qualify the trail for the National Register and CRHP.

In contrast, the Staff Assessment states: "…should no material evidence of the Anza Trail or activity related to the trail's use be found, the designated trail corridor…would not…qualify for further consideration under either the NRHP or CRHR…because there would be no physical cultural resource present. Under such circumstances, the Anza Trail would not qualify for further consideration …as a historic property or historical resource." (C.3.134) This statement is patently false. According to 36 CFR Part 60, the Secretary of Interior Guidelines and multiple other resources and examples, it is possible to consider segments or portions of trails, roads, and other linear features even if no cultural material exists in that particular segment.

The fact that there are no material items indicating historic use of the Anza Trail corridor is not evidence that this section of the Anza Trail is not significant. With campsites on either end of the corridor, and a part of a nationally designated significant trail corridor on the Project site, it is not a requirement that every inch of the trail be littered with an artifact indicating the use of the trail. The majority of significant trails in the west have vast segments without any cultural material such as the Mormon Trail, the California-Oregon Trail, the Pacific Crest Trail, and so on, and yet all segments of the trails are considered significant.

The Staff assessment suggests "off-site" mitigation, a term that is not standard procedure in the assessment and management of historic properties. Off-site mitigation is also known as compensatory mitigation and is not often cited as an acceptable measure as all cultural resources are non-renewable. It is difficult to compare off-site mitigation, such as a sign posted at some other spot along the trail or perhaps a study that produces a layman's book, with the

loss of a non-renewable resource – particularly one that has a designation and evaluation of national significance. Clearly the Commission should give more consideration to mitigating the impacts from the loss of the trail, regardless of whether there are known remnants on the Project site.

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STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the IMPERIAL VALLEY SOLAR PROJECT (formerly SES Solar Two)	Docket No. 08-AFC-5

REPLY BRIEF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY

August 18, 2010

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I. INTRODUCTION

The Applicant is seeking to build one of the largest solar power plants in the world. Unfortunately the Applicant has chosen an approximately ten square mile area of relatively undisturbed desert public land on which to build that is literally laden with an ***extraordinary number of cultural resources*****,** according to CEC staff archeologist Mike McGuirt; and that serves a number of regionally and, ***nationally significant biological and hydrologic functions***, according to the U.S. Environmental Protection Agency ("EPA").

In reviewing a project with impacts of this magnitude, it would be reasonable to expect that the Commission would not cut-corners in its analysis pursuant to the California Environmental Quality Act ("CEQA"), but cut-corners it has, and in the most critical resource areas. While there is no dispute that Staff has made great strides towards identifying and analyzing a number of significant impacts from the Imperial Valley Solar project ("Project"), an enormous amount of work has yet to be done before the analysis of this Project complies with CEQA.

The rushed analysis has resulted in a disorderly process that has *overtly* deferred the Commission's environmental review until *after* project approval. Impacts of this magnitude need to be analyzed and mitigated by the Commission before the Project is approved, as required by CEQA, rather than left until later for others to work out. In fact, impacts of this magnitude cry out for the Commission to look more carefully at alternative locations for this Project. Thus, the Commission cannot approve this Project because, thus far, Commission Staff has not completed the analysis required by CEQA.

The Opening Briefs *from Staff and the Applicant* make clear that there is a lot more work to be done. For example, *the very basic design* of the Project has not been agreed upon. The Applicant submitted one design in the original AFC for a 750 Mw project, and that design was refined and parsed and studied in a number of onsite alternatives by Staff, in consultation with the US Army Corps of Engineers ("Corps") over the course of two years. This design was also circulated to the public for review and comment. The hearings held by the Commission were on this design and Staff's alternatives to that design.

Now, the Applicant has re-worked the design of its Project *without Staff input* resulting in a *new design* that changed fundamental assumptions about the Project, such as whether there would be 30,000 stabilized spur roads to each of the approximately 30,000 SunCatcher units, or if all travel to the units for maintenance and washing would be done "over land," and how many of the main stem washes will be impacted.

In fact, in the Applicant's new design, now referred to as the 709 Mw alternative, the number of impacted main stem washes is more than those impacted in Staff's preferred alternative. Specifically, the Applicant's 709 Mw design will impact ***seven additional*** main stem washes than Staff's preferred alternative. The Applicant argued that this increase is irrelevant because the overall acreage of impacts to waters of the U.S. is lower. However, Staff correctly responded that it isn't just a matter of acreage. The number of impacted washes matters in a number of ways, including for species attempting to move through the site.

Although Staff did not evaluate the Applicant's newly proposed project in any detail, the Applicant is requesting that the Commission approve its newly proposed 709 Mw redesigned Project. To further complicate the situation, Staff explained that the 709 Mw version *may change again* because it is currently under evaluation by the Army Corps, Bureau of Land Management ("BLM") and EPA. The recently proposed Project is also being circulated to the public and other agencies for further comment. Thus, even if the Commission approves the Applicant's newly proposed 709 Mw redesigned project, which it cannot, the currently proposed project may not be the alternative that is ultimately permitted by the Corps.

The bottom line is that the Commission cannot abdicate its responsibility under CEQA and approve the Applicant's newly proposed 709 Mw redesigned project without conducting an independent analysis of potentially significant unmitigated impacts. If it did, the approval would be tantamount to giving the Applicant a blank check and holding them to the honor system, a manifest violation of CEQA.

Finally, *the Project does **not** have a reliable primary or back-up water supply* as required by CEQA, the Warrren-Alquist Act and the Commission's regulations. The significance of this fact in the Colorado Desert cannot be overstated. The lack of a reliable water source violates State laws. The lack of a reliable water source is a public health issue due to the potential dust emissions that would be generated in an area already plagued by Valley Fever and asthma problems. The lack of a reliable water source means the Project is not reliabile. The Applicant's own testimony acknowledged that water is critical to maintaining the construction and operation schedule necessary to meet contract milestones and maintain funding.

As CURE has stated to the Commission throughout this proceeding, the Commission's consideration of the Project must be suspended until the Applicant can provide substantial evidence of a reliable water supply.

II. PROJECT DESIGN, IMPACTS AND MITIGATION HAVE FUNDAMENTALLY CHANGED SINCE THE RELEASE OF THE STAFF ASSESSMENT; NOTICE AND RECIRCULATION ARE REQUIRED

The Project has changed in a number of significant ways since the release of the Staff Assessment ("SA"). The SA assumed that the Seeley Waste Water Treatment Facility ("SWWTF") would serve as the Project's water needs. Moreover, the SA was released well before the Applicant proposed the use of the Dan Boyer well, the water supply determined to be the Project's primary supply and the source of new significant unmitigable environmental impacts.

The initial SA did not find significant unmitigated impacts to a flat-tailed horned lizard ("FTHL") movement corridor – an impact that was determined to be *significant and unmitigable* in the Supplemental Staff Assessment ("SSA"). The SSA also abandoned the mitigation proposal to translocate FTHL, a central aspect of the overall mitigation strategy in the SA.

Finally, the SSA correctly did an about-face on impacts to an endangered species, the peninsular bighorn sheep ("PBHS"). The SSA found a significant impact to forage habitat for this species.

Although Staff is entitled to change its mind about impacts to species when the evidence demonstrates a new significant impact, the public is entitled to learn about a new significant impact and weigh in on the mitigation strategy under CEQA. Because the SSA was not circulated for public review and comment, the public and agencies have not been able to weigh in on the proposed water supply and new significant impacts.

Finally, if the Commission seeks to consider permitting a new project design that would conform to the Army Corps of Engineers ("Corps") least environmentally damaging practicable alternative ("LEDPA"), this too would trigger the obligation to re-notice and recirculate a draft CEQA document for review and comment. And, importantly, the Commission must identify where in the record Staff reviewed the LEDPA's potentially significant environmental impacts under CEQA.

CEQA does not require recirculation for each and every project change, but CEQA does require the renoticing and recirculation of an EIR, or EIR equivalent, for public review and comment when significant new information is added to the EIR following public review but before certification.[1] The CEQA Guidelines clarify that ***new information is significant if "the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a***

[1] Pub. Resources Code, § 21092.1.

substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect."[2]

The purpose of recirculation is to give the public and other agencies an opportunity to evaluate the new data and the validity of conclusions drawn from it.[3] Clearly the changes outlined above are substantial enough to require the Commission to re-notice and recirculate the SA. The Committee must revise the schedule to incorporate this legally mandated procedure.

III. CURE AGREES THAT THE COMMISSION CANNOT PERMIT THE LEDPA WITHOUT ENVIRONMENTAL REVIEW BY STAFF; STAFF'S ANALYSIS MUST BE SUBMITTED IN A REPORT PRIOR TO FURTHER EVIDENTIARY HEARINGS

Staff concluded that the Commission should not approve a Draft LEDPA that has not been the subject of thorough analysis of potentially significant impacts and feasible mitigation. (*Staff Opening Brief p. 2.*) Commission Staff correctly point out that the Draft LEDPA reduces the overall number of acres, but that it "does so by different means." (*Staff Opening Brief p. 3.*) CURE adds that the different means would result in new potentially significant and unmitigated impacts. The Commission's approval of Draft LEDPA without further environmental analysis would violate CEQA.

The 709 Mw Project first appeared in Applicant's additional opening and rebuttal testimony (*Exhibit 129.)* By attaching it to testimony, the proposal is not even a part of the Application for Certification. If the Applicant seriously sought to have this alternative considered, it should have been a formal Supplement to the Application for Certification subject to review by Staff in a formal report. In keeping with standard Commission process, all parties must be given an opportunity to seek data and submit testimony on these Project changes.

The Applicant "shall have the burden of presenting sufficient substantial evidence to support the findings and conclusions required for certification of the site and related facility." (*20 Cal. Code Reg. § 1748(d).)* Commission Staff must review the application, assess the environmental impacts and determine whether mitigation is required, and set forth this analysis in a report written to inform the public and the Commission of the Project's environmental consequences. (*20 Cal. Code Reg. §§ 1744(b), 1742.5(a)-(b*).) Staff's analysis must reflect the "independent judgment" of the Commission. (*14 Cal. Code Regs. § 15084(e).)* Before approving a project, the Commission must conclude that Staff's report has been completed in compliance with CEQA, that the Commission has reviewed and considered the information in the report prior to approving the project, and that Staff's report

[2] CEQA Guidelines, § 15088.5.
[3] *Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (1981) 122 Cal.App.3d 813, 822.

reflects the Commission's independent judgment and analysis. (*14 Cal. Code Regs. §15090(a); see Pub. Res. Code § 21082.1(c)(3).)*

Because the Applicant failed to provide information regarding its newly proposed Project until after Staff completed both the initial SA and SSA on the Applicant's previously proposed Project, this information was not analyzed by Staff in a report and was not presented to the Commission or other parties. Therefore, the Commission cannot approve it because it cannot make the required finding that Staff"s report reflects the Commission's independent judgment and analysis of the new Project.

Moreover, if submitting a newly proposed Project at the 11th hour – during evidentiary hearings – is accepted by the Commission, every Applicant would do well to save the most controversial evidence for the last minute so it would receive less scrutiny and analysis. The Commission should reject the proposal for the 709 Mw alternative outright.

a. Applicant Has Not Submitted Substantial Evidence that a Smaller Project is Infeasible

CURE also agrees with Staff that the Applicant has not provided substantial evidence to prove a smaller project is economically infeasible. Indeed, perhaps the best evidence of economic feasibility is the Applicant's contract with San Diego Gas and Electric ("SDG&E") for a 300 Mw project on this Project site. (*Exhibit 499-M.)* ***The Applicant's commitment to SDG&E to develop a 300 Mw Project is clear evidence that a 300 Mw Project is economically feasible.***

CEQA mandates that an agency not approve a project with significant environmental impacts if "there are feasible alternatives or mitigation measures" that can substantially lessen or avoid those impacts. (*Mountain Lion Foundation v. Fish & Game Commission* (1997) 16 Cal.4th 105, 134; *Sierra Club v. State Board of Forestry* (1994) 7 Cal.4th 1215, 1233; *see also* Pub. Res. Code § 21002 ("public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects"); *see also* 14 Cal. Code Regs. § 15091(a).) CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." (Pub. Res. Code 21061.1.) "The fact that an alternative may be more expensive or less profitable is not sufficient to show that the alternative is financially infeasible. What is required is evidence that the additional costs or lost profitability are sufficiently severe as to render it impractical to proceed with the project." (*Citizens of Goleta Valley v. Board of Supervisors* (1988) 197 Cal.App.3d 1167, 1181; Exh. 500, p. 6-11.)

In the Beacon Solar Energy Project ("Beacon") proceeding, Commission staff established reasonable benchmarks for the expected rate of return on investment, or "internal rate of return (IRR)," in order to determine economic feasibility. Staff determined that for solar plants around 250 Mw the "upper end of profitability" is 14% and that "a fair representative of the marketplace" is an 8% IRR.[4] Staff concluded that "economic feasibility for solar energy power plants appears to be achieving an internal rate of return (annualized net profit margin) of 11% or more.

It is commonplace for applicants to argue that mitigation and alternatives are infeasible and that the approval of scaled-down alternatives would result in the Project not being economically viable. However, the Applicant in this proceeding has not provided substantial evidence to date of the economic basis for its conclusions that a 300 MW alternative is economically infeasible.

b. The Applicant Has Not Provided Evidence of Agency Approval of the LEDPA

The Applicant claimed, without support, that the U.S. Fish and Wildlife Service ("USFWS"), the EPA, the Corps, and other agencies concluded that the 709 Mw alternative is the LEDPA. (*Applicant's Opening Brief p. 7.*) This claim is not supported in the record.

Although the Corps may support a 709 Mw alternative, the Corps is currently in the process of taking public comments on the document and may modify the analysis as a result. Staff agreed that the Corps' review may change and no final decision has been made. In addition, there is no evidence in the record that the USFWS, EPA or "other agencies" have concluded the draft LEDPA submitted as a part of the Applicant's Rebuttal testimony is actually the least environmentally damaging feasible alternative.

It defies logic that agencies without jurisdiction to determine compliance with the Clean Water Act would attempt to conclude what the least environmentally damaging alternative to the Project is under that statute.

c. Applicant's Legal Argument That The Commission Can Approve the LEDPA Without Additional Review Doesn't Withstand Scrutiny

The Applicant argues that the draft LEDPA is within the range of alternatives that have already been analyzed by the Commission and no additional analysis is necessary. (*Exhibit 129; Applicant's Opening Brief p. 11.*) The Applicant's argument is incorrect.

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[4] *Id.*

First, the description of the Project in the Corps' Draft 404(b)(1) analysis shows that roads to each and every SunCatcher were eliminated from the Project design. Now, as demonstrated by the Applicant's testimony, cars will drive to each and every one of the SunCatcher units "over land." (*Exhibit 129; - Hearing Transcript Fitzgerald Testimony 7/27/2010.)*

The Applicant misleads the Commission by arguing that "the Commission is free to approve a project smaller than that described as the proposed project in the SSA." However, the issue here is that the draft LEDPA is not simply a "smaller" version of the proposed Project. The draft LEDPA is new and different.

Similarly, the cases that the Applicant cites, *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523 and *Dusek v. City of Anaheim (*173 Cal.App.3d 1029, are inapposite. Both cases analyze situations where the CEQA lead agency approved only a part of the Project, rather than a redesign of the Project. The Applicant's draft LEDPA Project is distinguishable from those cases because the draft LEDPA Project is significantly different.

Therefore, the Commission cannot approve the draft LEDPA Project without further environmental review of new and different potentially significant and unmitigated impacts.

IV. THE COMMISSION CANNOT MAKE A FINDING THAT THE PROJECT HAS A RELIABLE WATER SUPPLY

Commission Staff conducted an analysis of the water options proposed by the Applicant and found that the Applicant has not proposed an adequate and reliable water supply for the Project.

a. The Committee Should Agree With Staff That The Outcome of SWWTF EIR Process Cannot be Predetermined

The outcome of the EIR for the SWWTF is far from certain. The Seeley County Water District has not completed preparation of or circulated a Draft EIR for the SWWTF in order to determine whether it is even possible to provide water to the Project. Once the Draft EIR is circulated, the Distict must review and respond to agency and public comments that may identify concerns, including significant impacts from the project.

As CURE's Opening Brief discussed, there is no evidence that the Imperial Irrigation District concerns have been considered or addressed: that the loss of effluent could have a significant cumulative impact on the canals system. Additionally, no study has been done to analyze how the reduction of flows into the

New River would affect the wetlands in the immediate vicinity beyond Wildcat drain. The Applicant has not even provided the results of its hydrologic study or several of the biological surveys required by the agencies. (This is consistent with the Applicant's approach throughout this proceeding of withholding documents from the public and agencies in order to ensure timely review.) Therefore, it is still uncertain what the outcome will be from the EIR process.

CURE agrees with Staff "there is a possibility that environmental impacts will prove more challenging than anticipated and delay the completion of the Project." (*Staff's Opening Brief p. 19.)* It is entirely possible that the Seeley County Water District will conclude that the release of its effluent into Wildcat drain was a mitigation measure established in 2003 to protect the adjacent wetlands and that mitigation cannot be discontinued. Thus, the Commission cannot rely upon the SWWTF as a viable water supply for the Project.

b. There is No Evidence that the Upgrade Project Would Occur Without Tessera Solar Funding

Although the Applicant made it clear that the SWWTF would like to upgrade their facilities to avoid discharge violations, there is no evidence that the SWWTF would have the means to upgrade their facilities without funding from the Project Applicant. In addition, there is no evidence that even if the SWWTF was upgraded in the absence of the Project, the effluent would be diverted from the outfall to the Wildcat drain, New River and Salton Sea. Finally, although there is no evidence of any potential upgrade apart from the proposed Project, a hypothetical potential upgrade could be to eliminate contaminants in the discharge, rather than to eliminate the discharge itself, for the continued benefit of biological resources in the New River and Salton Sea. In contrast, approving the Project's use of recycled water would result in a wholesale removal of the outfall for use by the Project Applicant.

c. The Dan Boyer Well is Not a Reliable Long-term Water Supply

The Applicant has not provided ***any*** evidence that Dan Boyer is willing to sell sufficient water to meet the needs of the Project. The letter from Dan Boyer Water Company expressed a willingness to provide water for only approximately 6 to 11 months and did not state an amount.

In addition, CURE provided substantial evidence showing that Staff and the Applicant *underestimated* the amount of water needed to operate the Project. (*Exhibit 499-I, pp. 2-4.)*

Furthermore, the Applicant admitted that it would require water from the SWWTF within a year to meet contractual requirements. (*Hearing Transcript of July 26, 2010, p. 116.*)

Thus, as concluded by Staff, even if the Dan Boyer well provided some water to the Project, the water would admittedly be an insufficient amount for the 40-year operating life of the Project. (*Exhibit 302, pp. C.7-53 and 54.*)

Finally, the Dan Boyer well does not have an export permit that is required by the County before any potential water could flow to the Project. As explained in CURE's opening brief, the plain language of the County's groundwater ordinance states that an export permit is separate from a registration and has an entirely separate approval process.

The County Code prohibits the Planning Commission from issuing a permit to export water from the County or from the groundwater basin unless the applicant has established that there is an available supply in excess of the amount currently required for reasonable and beneficial uses within the County, and that the Planning Commission determines that such export, if permitted, would not adversely affect the rights of groundwater users within the County or the groundwater basin from which the groundwater is derived. (Imperial County Municipal Code, Div. 22, Chap. 3 § 92203.02.) The Ordinance defines the groundwater basin **as the basin, or portions thereof, within the boundaries of the County and any sub-basins located therein.** (*Id.* at § 92201.04(O).)

The County's Ordinance, and the process set forth therein, was developed to ensure that the water needs of overlying users are satisfied before users that are outside the basin (or outside of the distinct portion of the basin or sub-basin). This is a basic principle of water law. The Applicant must find a reliable water supply that is then scrutinized by the Commission before a license can be issued for this Project.

d. Commission Should Only Re-Initiate Project Review After SWWTF is a Permitted Source

The Dan Boyer Water Company well is not a reliable water supply for this Project, because it cannot provide the amount of water required for the Project. The SWWTF upgrade is not a reliable water supply, because it is undergoing environmental review and may never be permitted, depending on the outcome of a number of studies and agency decisions.

An alternative to suspending this proceeding until the Applicant provides evidence of a feasible, reliable water supply is for the Commission to condition the start of Project construction on a fully permitted and operational SWWTF upgrade.

This would require modifying condition of certification Soil and Water 9 in the SSA. CURE proposes modifying Soil and Water 9 as follows:

ASSURED WATER SUPPLY SOIL&WATER-9

The project owner shall provide the CPM two copies of the following: The Notice of Determination from the Seeley County Water District for the SWWTF upgrade project; (2) a take permit from the US Fish and Wildlife Service for the SWWTF, if necessary and appropriate; (3) a permit from the RWQCB Division of Water Rights for diversion of flows from the New River to the Imperial Valley Solar project; (4) any needed approval from the US Army Corps of Engineers; (5) the current executed recycled water purchase agreement for the long-term supply (40 years) between the project owner and the Seeley County Water District with a cap on the delivery rate of 51 AFY for construction and 33 AFY for operations and all terms and costs of delivery and use of recycled water by the Imperial Valley Solar project.

The project owner shall comply with the requirements of Title 22 and Title 17 of the California Code of Regulations and section 13523 of the California Water Code. The project owner must also submit to the CPM evidence that metering devices are operational on the water supply and distribution system to record, in gallons per day, the total volume of water supplied to the Project from the SWWTF for the life of the Project.

For the first year of operation, the project owner shall prepare an annual Water Use Summary, which will include the monthly average of daily water usage in gallons per day, and total water used by the project on a monthly and annual basis in acre-feet. For subsequent years, the annual Water Use Summary shall also include the annual water used by the project in prior years. The annual Water Use Summary shall be submitted to the CPM as part of the annual compliance report.

Verification: No later than 60 days prior to construction, the project owner shall submit two copies of the Seeley County Water District Notice of Determination, including the necessary documentation and proof that the specific terms of the permit have been met, the executed agreement for the supply of recycled water for the project, a take permit from US Fish and Wildlife Service if necessary and appropriate, a permit from the RWQCB Division of Water Rights, and any needed approval from the US Army Corps of Engineers. The agreement shall specify that the water purveyor can provide water at a maximum of 51

AFY for construction and 33 acre feet per year for operation to the Imperial Valley Solar project.

This modified condition would require that the Project have a firm and reliable water supply prior to constructing the Project, as is required by CEQA.

V. BIOLOGICAL IMPACTS HAVE NOT BEEN FULLY IDENTIFIED OR MITIGATED

CURE's testimony provides substantial evidence that a number of significant biological impacts have not been adequately identified or mitigated. These significant unmitigated impacts include impacts to burrowing owl, golden eagles, FTHL, PBHS and migrating birds.

CURE also demonstrated that the proposed compensation land mitigation is not feasible, effective or capable of implementation. CURE addressed this in detail in our Opening brief. Staff and the Applicant did not address these impacts and legal issues in their brief, so CURE cannot reply to their response. However, there are several issues that were raised by Staff and the Applicant relating to biological resources that we respond to below.

a. CURE Agrees With Staff That Tamarisk Removal Will Not Mitigate Impacts to PBHS Foraging Habitat

The Applicant's proposal to rely upon Tamarisk removal from Carrizo Creek *instead of* land acquisition was mentioned for the first time in the 404(b)(1) analysis in July, 2010, after the SSA was published. In fact, this was inserted in testimony only days before evidentiary hearings. This proposal was not accompanied by a detailed plan. The Applicant has not provided substantial evidence to show that this mitigation plan would be effective or is even reasonably likely to meet the requirements of CEQA.

CEQA guidelines require "a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences . . . [t]he courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure." (*County of Amador v. El Dorado County Water Agency* (1999), 76 Cal.App.4th 931, 954, quoting CEQA Guidelines § 15151; *see also Berkeley Keep Jets Over the Bay Com. v. Bd. of Port Commrs.* (2001) 91 Cal.App.4th 1344, 1367.) Only "where substantial evidence supports the approving agency's conclusion that mitigation measures will be effective, courts will uphold such measures against attacks based on their alleged inadequacy." (*Sacramento Old City Assn. v. City Council* (1991) 229 Cal.App.3d 1011, 1027 (*SOCA*), citing *Laurel Heights*

Improvement Association v. Regents of the University of California (1988) 47 Cal.3d 376, 407.)

As CUREs witness Dr. Vernon Bleich testified, the removal of Tamarisk is not likely to mitigate the significant impacts posed by the Project:

> MS. MILES: So would you expect there to be benefits to the species as a result of a removal of Tamarisk along Carrizo Creek and the associated marsh?
>
> DR. BLEICH: In terms of foraging value of the area, not necessarily. Big horn sheep are not marsh-dwelling creatures, nor do they regularly inhabit riparian areas unless those riparian areas are the ephemeral desert washes, similar to those occurring on the project site, and that produce high-quality forage, sought in particular by female big horn sheep during late gestation.
>
> Benefits incurred by big horn sheep through the removal of Tamarisk would, in my opinion, likely be limited to increased visibility and would not necessarily result in an increase in forage availability. Virtually all investigators agree that the more open an area, the more apt it is to be used by big horn sheep, and these opinions are voiced repeatedly in the recovery plan prepared by the Fish & Wildlife Service.

Again, the Applicant is relying on documentation filed in testimony that should have been a part of the Application for Certification that the Applicant concludes serves as evidence of the baseline "quality and functionality of land." Moreover, CURE has submitted uncontroverted expert testimony that the removal of Tamarisk at Carrizo Creek does not mitigate for loss of foraging habitat to bighorn sheep. Additionally, as CURE explained in our Opening Brief, the removal of Tamarisk at the Carrizo Creek will run the risk of impacting two endangered species, the Southwestern Willow Flycatcher and the Least Bell's Vireo, and the potentially significant impacts to these listed species has been given no study whatsoever.

b. CURE Agrees With Staff That Phasing Mitigation Requires Additional Factual Analysis and Adds That This Analysis Must Be Included In a Report Circulated To All Parties

At this time, CURE has not seen any evidence that the phasing of mitigation payments would per se violate CEQA. However, the Applicant should not be able to

fence, disturb or build upon any land that has not been mitigated for prior to the disturbance, because this would be a plain violation of CEQA.

However, since this late-proposal involves the regulation of ground disturbance, it should be analyzed in a report rather than in a behind-the-scenes piecemeal fashion. The phasing of disturbance and mitigation is complex and all parties deserve an opportunity to weigh in on a complete proposal. Legally, the Commission is required to provide an opportunity for public review and comment on this proposal since it is a new mitigation measure designed to mitigate significant impacts on biological resources. (14 Cal. Code Reg. §15088.5.) Nowhere in the record has Staff or the Applicant presented a complete proposal of how this would work.

c. The Commission Should Reject the Applicant's Argument That the Amount of Compensatory Mitigation Should Be Reduced to Reflect the Quality and Functionality of Land

The Applicant's analysis did not provide substantial evidence to evaluate the quality and functionality of the land. The Applicant is relying upon California Rapid Assessment Model data that submitted on July 21, 2010 as Supplemental Rebuttal Testimony ***after the release of the <u>Supplemental</u> Staff Assessment***, and thus was not analyzed by Staff to serve as the baseline analysis for the purposes of CEQA review. Moreover, the analysis itself states that the biological estimates were problematic:

> The results of this baseline study indicate that the theoretical construct of CRAM can be applied to arid, ephemeral streams, but certain metrics in the current Riverine Module will need to be recalibrated for these systems. The Landscape and Buffer Attribute can potentially apply to arid systems as currently constructed. The Hydrology Attribute performs reasonably well for arid systems, but some of the current indicators and field techniques will need to be revised in order to assess specific metrics. ***The Physical and Biotic Structure attributes were the two most problematic attributes to apply to a condition assessment of drainages in the study area.*** (Exhibit 129.)

The Applicant's argument that 28% of the washes serve as viable forage for PBHS is not only based on an analysis that itself concedes is not adequate for that purpose but is also factually inaccurate. The CRAM modeling only states that there is an average of 28% cover on the washes. This average cover on the washes doesn't stand for the proposition that 28% of the washes are suitable habitat for PBHS.

> MS. MILES: In your opinion, do you think that the CRAM modeling should be used to establish the baseline

> conditions of the project site for big horn sheep habitat?
>
> DR. BLEICH: No, I do not.
>
> (…)
>
> DR. BLEICH: In my experience, 28 percent is a tremendous amount of cover in a Sonoran Desert wash. I would expect, and based on work I've personally been involved with, that 10 to 15 percent cover in a wash is a very high amount of biomass.
>
> *(Hearing Transcript of July 27, 2010, pp. 333-334.)*

This un-rebutted testimony of Dr. Bleich provides substantial evidence that there is no threshold of cover for forage requirements for bighorn sheep. It would be unreasonable for the Commission to give any weight to the Applicant's unanalyzed late-filed CRAM modeling that on its face admits that the biological conclusions that it drew were problematic. This document can in no way serve as substantial evidence of the amount of forage currently available on the Project site for PBHS.

VI. RELIABILITY: INFORMATION FROM MARICOPA IS A GOOD STEP BUT DOESN'T MITIGATE THE IMPACT

Commission Staff have proposed as a condition of certification that the Applicant provide Staff with confidential reports from the operations of the Applicant's Maricopa power plant. CURE agrees that this condition is needed. However, this condition is meaningless unless it includes language that would allow the CPM to halt construction if serious concerns arise. For example, if there is a major breakdown of operations at the Maricopa facility and it is determined that the design of the SunCatcher units has a fatal flaw, the Energy Commission should have the authority to halt further ground disturbance until the Applicant can present evidence that the problems have been addressed.

VIII. CONCLUSION

The Commission cannot approve the Project as proposed. Until the Applicant can provide a permitted, reliable, long-term water supply and a clear description of the Project for which it seeks a license, the Commission should suspend this proceeding. If the Commission approves the Project as proposed, the Commission will violate CEQA and the Warren-Alquist Act.

Dated: August 18, 2010 Respectfully submitted,

_____/s/_____

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STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the Imperial Valley Solar Project (formerly known as SES Solar Two)	Docket No. 08-AFC-5

PROOF OF SERVICE

I, Bonnie Heeley, declare that on August 18, 2010, I served and filed copies of the attached **REPLY BRIEF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY.** 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 http://www.energy.ca.gov/sitingcases/solartwo/Imperial_Valley_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 via email and by U.S. Mail with first-class postage thereon, fully prepaid and addressed as provided on the Proof of Service list to those addresses NOT marked "email preferred." An original paper copy and one electronic copy, mailed and emailed respectively, were sent to the Docket Office.

I declare under penalty of perjury that the foregoing is true and correct. Executed at South San Francisco, CA on August 18, 2010.

_____/s/_____
Bonnie Heeley

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STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the IMPERIAL VALLEY SOLAR PROJECT (formerly SES Solar Two)	Docket No. 08-AFC-5

OPENING BRIEF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY ON CULTURAL RESOURCES

August 20, 2010

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I. INTRODUCTION

The Imperial Valley Solar Project ("Project") comprises 6,144 acres of public lands that contain an "extraordinary" number of cultural resources, according to Commission archeologist Michael McGuirt. (August 16, 2010 Tr. p. 80.) Mr. McGuirt estimated that "the ***number of cultural resources*** that we have in this one project area ***exceeds all the cultural resources*** that the Energy Commission has dealt with to date." (August 16, 2010 Tr. p. 80 (emphasis added).) The Historic Preservation Officer of the Quechan Tribe, Bridget Nash, echoed the opinion of Mr. McGuirt: "[t]he project area that is proposed is extremely rich in cultural resources." (Id. at pp. 104-105). In fact, Ms. Nash testified that the Project area is a part of a continuous cultural landscape that must be taken as a whole and includes areas that extend from the Project in every direction. (Id. at p.109.)

A simple visual inspection of the ground surface on the proposed Project site revealed at least 453 cultural resource sites on the site. (Exh. 307, Appendix B, p. 48.) These resources include two prehistoric districts, multiple stone scatters with human worked bones, stone tools, ceramics, geoglyphs, 11 segments of a prehistoric trail system, and a considerable number of cremations on and adjacent to the Project site. (August 16, 2010, Tr. p. 138.) The Project site is located in an area that is ancestral and sacred to a number of Tribes, including the Quechan Indian Tribe, the Cocopah Indian Tribe, and the Kumeyaay Nation.

Despite these extraordinary cultural resources, or perhaps because of it, the Energy Commission Staff deferred the required determination of significance for most of these resources that would establish the environmental setting under the California Environmental Quality Act ("CEQA") upon which to evaluate impacts and identify mitigation measures.

Instead, Staff hypothesized significance findings and deferred the identification of mitigation to future plans, which would be developed after Project approval. Every aspect of this process violates CEQA.

CEQA has two basic purposes, neither of which the Supplemental Staff Assessment ("SSA") satisfies. First, CEQA is designed to inform decision makers and the public about the significant environmental effects of a project before harm is done to the environment. (14 Cal. Code Regs. § 15002(a)(1); *Berkeley Keep Jets Over the Bay v. Bd. of Port Comm'rs.* (2001) 91 Cal.App.4th 1344, 1354 ("*Berkeley Jets")*; *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810.)

Second, CEQA directs public agencies to avoid or reduce environmental damage by requiring imposition of mitigation measures and by requiring the consideration of project alternatives. (CEQA Guidelines § 15002(a)(2) and (3);

Berkeley Jets, 91 Cal.App.4th 1344, 1354; *Laurel Heights Improvement Ass'n v. Regents of the University of California* (1988) 47 Cal.3d 376, 400.)

A central purpose of an EIR is to "identify ways that environmental damage can be avoided or significantly reduced." (CEQA Guidelines §15002(a)(2).) If the project has a significant effect on the environment, the agency may approve the project only upon finding that it has "eliminated or substantially lessened all significant effects on the environment where feasible," and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns" specified in CEQA section 21081. (CEQA Guidelines § 15092(b)(2)(A)-(B).)

The Commission appears to be poised to approve this Project without having completed these basic requirements of a CEQA analysis. The SSA failed to inform decision makers and the public about the significant environmental impacts that will occur as a result of the project, and the SSA failed to avoid or reduce significant environmental effects. This is due in large part to Staff's failure to make significance determinations in order to determine the existing setting, or baseline, upon which to measure impacts. Further, there is no evidence that the Staff's proposed mitigation for significant impacts to cultural resources will be effective and feasible.

II. THE BASELINE IS FLAWED AND THE PROJECT WILL RESULT IN SIGNIFICANT UNANALYZED AND UNMITIGATED IMPACTS

The Project proposes to install approximately 30,000 SunCatcher units. (Exh. 307, C.3-130) Each unit will be drilled into the ground disturbing any subsurface resources that may lie there. (August 16, 2010 Tr. p. 42.) There will be ***no opportunity for monitors to detect the presence of subsurface remains before they are impacted***. (Id.)

No effort has been made to determine existing subsurface resources on the Project site in order to inform the public and the decisionmakers about subsurface cultural resources that may be lost as a result of the proposed Project. The only effort made with respect to cultural resources was a visual survey of the ground surface and a review of historical survey efforts.

As a result, the identification, analysis and mitigation of most of the resources on the site are proposed to occur ***after Project approval*** and after the public scrutiny phase of the environmental review process has ended. However, at that point, it will no longer be possible to consider alternatives, no matter how significant the resources are that are discovered or evaluated post-approval. In addition, the options for avoidance will be significantly constrained after project approval. This will be true for both buried archeological resources and ethnographic resources.

a. The SSA's Failure to Establish an Accurate Environmental Baseline Precludes an Adequate Analysis and Formulation of Mitigation

The environmental setting, or baseline, refers to the conditions on the ground and is a starting point to measure whether a proposed project may cause a significant environmental impact. CEQA defines the "baseline" as the physical environment as it exists at the time CEQA review is commenced. (14 Cal. Code Reg. §15125(a); *Riverwatch v. County of San Diego* (1999) 76 Cal.App.4th 1428, 1453.) "An EIR must focus on impacts to the existing environment, not hypothetical situations." (*County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 952.) If the description of the environmental setting of the project site and surrounding area is inaccurate, incomplete or misleading, the EIR does not comply with CEQA... Without accurate and complete information pertaining to the setting of the project and surrounding uses, it cannot be found that the EIR adequately investigated and discussed the environmental impacts of the development project. (*Cadiz Land Co., Inc. v. Rail Cycle, L.P.* (2000) 83 Cal.App.4th 74, 87, *citing San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 721-722, 729.)

Describing the environmental setting is a prerequisite to an accurate, meaningful evaluation of environmental impacts. The importance of having a stable, finite, fixed environmental setting for purposes of an environmental analysis was recognized decades ago. (*County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185.) Today, the courts are clear that, "[b]efore the impacts of a project can be assessed and mitigation measures considered, an [environmental review document] must describe the existing environment. It is only against this baseline that any significant environmental effects can be determined." (*County of Amador*, supra, 76 Cal.App.4th at 952.) In fact, it is a central concept of CEQA, widely accepted by the courts, that the significance of a project's impacts cannot be measured unless the EIR first establishes the actual physical conditions on the property. In other words, baseline determination is the first rather than the last step in the environmental review process. (*Save Our Peninsula Committee v. Monterey Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 125.)

The SSA's method for determining the baseline of cultural resources fails to satisfy CEQA. The widely followed CEQA standard practice for establishing the environmental baseline for cultural resources includes test excavations and an ethnographic study. (August 16, 2010, Tr. pp. 62, Ex. 499-S.) The SSA could not establish an accurate environmental setting for determining impacts to cultural resources because the Applicant did not conduct an ethnographic study or perform any test excavations to determine if subsurface deposits are present on the Project site. (August 16, 2010 Tr., p. 53.)

All of the information regarding the Project's baseline environmental setting, including the location and boundaries of archaeological sites, was derived from visual examination of the ground surface. (Id., p. 62.) But, Staff admitted that it is not always possible to determine the size and nature of archaeological sites based solely on visual examinations of the ground surface. (Id.) For example, Staff agreed that it cannot be determined whether or not burials are present within sites based solely on visual examination of the ground surface. (Id., p. 53.) Staff also agreed that test excavations are required to determine whether burials are present within a site. (Id., p. 62.)

i. Buried Archeological Resources

The SSA acknowledged that the Project would have a significant impact on an unknown number of 330 *known* prehistoric and historic surface archeological resources. (Exh. 307, p. C.3-1.) Note the 330 number is from a 25% sample survey, the Programmatic Agreement ("PA") identifies 453 resources. (Exh. 307, p. C.3-1.) The SSA further acknowledged that the Project may have a significant impact on an unknown number of buried archeological deposits, many of which may be determined eligible for the National Register and the California Register. (Id.)

At the Energy Commission May, 2010 hearing, a Kumeyaay and Quechan tribal elder expressed concerns about the value of the subsurface resources that may never be known:

> MR. ARROW-WEED: I also heard that potential for discovery for construction, what if you do find -- you haven't looked, you don't even know what's under there. You're only on the surface. It could be more under there. But you want to destroy it before we ever know anyway. (5/24/2010 Tr. p. 199)

Although any subsurface archeological sites are likely to be damaged or destroyed if they are near any of the two-foot diameter SunCatcher units drilled into the ground, Staff did not feel it was necessary to do subsurface testing or consider mitigation for these impacts in the SSA. (August 16, 2010 Tr. pp. 43 and 62.) However, at the evidentiary hearing, Staff admitted that subsurface test excavations are necessary to determine the size and extent of subsurface archeological resources. (Id.)

Thus, there is no dispute that Staff completely failed to evaluate significant impacts on subsurface archaeological sites, as required by CEQA. Until this analysis is completed, the Commission cannot make the required findings under CEQA.

ii. Ethnographic Resources

In addition to archeological resources, the Project site will likely impact a significant number of ethnographic resources, e.g. resources that have religious or cultural significance. These ethnographic resources have not been adequately identified or evaluated. The Applicant did not conduct an ethnographic study beyond a bare literature search. Staff conducted no other survey to identify ethnographic resources.

Claudia Nissley, cultural resource specialist and former State Historic Preservation Officer of Wyoming, testified that the ethnographic investigation for this Project was inadequate and that oral interviews should have been conducted with tribal members who can speak to the significance of the sites. (August 16, 2010 Tr. p. 164.)

Quechan Tribal Historic Preservation Officer Bridget Nash explained that an ethnographic study was necessary to ensure that the cultural significance of the resources impacted by the Project are adequately evaluated:

> MS. Nash: This is one way in which the tribes can really have some input into that associative value of the site, to allow the tribes to sit down and give their history and their knowledge of these areas. It's imperative that the tribe have an opportunity to share their cultural knowledge so that the archeologists have a better understanding of both the cultural and the ceremonial values of these resources. (August 16, 2010, Tr. p. 106.)

However, Staff conducted no oral interviews with tribal members who can speak to the significance of the sites, and no ethnographic study was prepared for the proposed Project site and area.

Although the SSA boldly lists Coyote Mountains and Mount Signal as sacred ethnographic resources that may be affected by the Project, in truth, Staff never undertook any effort to determine how the Project may affect these resources:

> MS. MILES: To what extent did the commission staff or you undertake analysis of the project's impacts to Mount Signal or Coyote Mountains?
>
> MR. McGUIRT: Very little. (August 16, 2010, Tr. p. 48.)

Consequently, Staff does not know how these resources are significant, or what mitigation is needed or appropriate. (Exh. 307, p. C.3-107.) Staff's consideration of potentially significant impacts to these resources simply is not based upon substantial evidence in the record.

iii. Failure to Establish an Accurate Baseline Renders Any Analysis Meaningless

Because test excavations and an ethnographic study were not conducted, Staff did not (and could not) assess the Project's potential to significantly impact buried cultural resources, including human burials, and ethnographic resources. Consequently, Staff also could not design mitigation that would reduce impacts to a level below significant.

Mitigation measures will vary depending on the nature and significance values of the specific resources. Without baseline data acquired through test excavations and an ethnographic study, Staff could not identify the significance values of the resources or their eligibility for the National or California registers and therefore could not apply appropriate mitigation.

> MS. APPLE: Until it is determined what the eligibility is, specific mitigation measures cannot be defined. The mitigation requirements are based on the eligibility determination, the eligibility determinations have been -- recommendations have been made to BLM, and the mitigation will follow once those determinations have been made. (Hearing 8/16/2010 Tr. p. 22.)

Staff has thus departed from standard CEQA practice and failed to determine the Project's environmental baseline. Staff's rationale for this departure from CEQA, a desire to quickly permit the project, is not adequate under law:

> "Energy Commission staff believes…that it is an unavoidable consequence of the accelerated schedule to which this licensing process has been and continues to be subject that there will have been insufficient time to develop a thoughtful and integrated cultural resource avoidance plan for the present configuration of the project area. The absence of formal recommendations and determinations on the historical significance of the entire inventory of cultural resources prior to a decision on the license application or prior to the onset of construction, should the project be approved, precludes the possibility of developing such a plan." (Exh. 307, p. C.3-158 – 159.)

By failing to establish the environmental baseline for cultural resources, the SSA violated CEQA's basic requirement that the environmental baseline be

determined at the first step in the environmental review process. (*Save Our Peninsula Committee v. Monterey Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 125.) Consequently, if the Commission approves the Project as proposed, the Commission will violate CEQA as a matter of law.

b. Staff Did Not Adequately Analyze Significant Impacts to Cultural Resources

CEQA requires the Commission to identify the Project's environmental impacts and provide mitigation measures for each adverse impact. (14 Cal. Code Regs. § 15126.4(a)(1).) Under CEQA, "a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." (Pub. Res. Code § 21084.1.) Specifically, adverse impacts consist of destruction of the significant characteristics, attributes and qualities that make those resources eligible for the listing in the California Register or the National Register. (Exh. 499-S.)

According to California law, there are four criteria that make a resource historically significant: (1) the resource is associated with events that have made a significant contribution to the broad patterns of our history; (2) the resource is associated with the lives of persons significant in our past; (3) the resource embodies the distinctive characteristics of a type, period or method of construction, or represents the work of a master, or possesses high artistic values; or (4) the resource has yielded, or may be likely to yield, information important to history or prehistory. (Pub. Res. Code § 5024.1.) Historical resources must also possess sufficient integrity of location, design, setting, materials, workmanship, feeling and association to convey their historical significance. (14 Cal. Code Regs. § 4852(c).)

To determine what the qualities of the resources are that make them significant, test excavations and consultations with tribes are necessary. (Ex. 499-S.) Because an ethnographic study and test excavations were not performed and consultation has only just begun, the qualities or characteristics that make these sites significant have not been identified. Rather, Staff just assumed that some of the resources would be significant, while admitting that much of the analysis has not been completed and the process of evaluation will be deferred until after the project is certified.

> MR. McGUIRT: What we did was is we by – through the 25 percent sample that our staff assessment and the supplemental staff assessment was based on, we were able to characterize the universe of archaeological site types that were in the project area. And on that basis, to be able to say that if the, absent flat-out avoidance, which did not appear to be an option in all cases, that the effect of the project as a whole would

> have a significant effect on the environment because there would be eligible properties that would be destroyed or disturbed at least partially. And so that was the basis for our conclusion on that.
>
> MS. MILES: But at this time you have not made a determination of eligibility in terms of individual archaeological sites.
>
> MR. McGUIRT: No. (Hearing 8/16/2010 Tr. p. 61.)

The Tribal Members who attended the meetings held by the CEC and BLM were not able to weigh in on future significance determinations because they were not provided with any cultural resources technical information until just recently, effectively excluding them from having the opportunity to provide their input on the cultural value of the identified resources.

> MS. NASH: And it's really concerning because still, to date, even though we received a notification letter in 2008 about this project, to date there's no cultural information. We don't have a cultural report…Here we are, it's almost June [2010], I know the deadlines, I heard a lot about deadlines today, ah, I can't believe I'm going to have this at the end of June, or of the beginning of July and, you know, the record of decision for BLM has to be signed by September, and yet there's still no cultural report.
>
> There's no sit-down with the Tribe, there's been no meaningful -- you know, the Tribe does not have all the information before it to be able to fully sit down and say, okay, these are the impacts that are going to happen to these sites, to these resources, to the areas outside. It's very much like a puzzle, you really need to have all those pieces to that puzzle to be able to figure out what is going to happen. (Hearing 5/24/2010 Tr. pp. 302-303.)

Since appropriate Tribal representatives could not review the technical report, they were effectively excluded from being able to provide input on the significance of the found resources.

CEQA and the Commission's regulations mandate that Commission Staff prepare a report to "demonstrate that the significant environmental impacts of the proposed project were adequately investigated and discussed and…permit the

significant effects of the project to be considered in the full environmental context." (*Cadiz Land Co., supra*, 83 Cal.App.4th at p. 92.) CEQA requires "a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences . . . [t]he courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure." (*County of Amador*, *supra*, 76 Cal.App.4th at 954, *quoting* CEQA Guidelines § 15151; see also *Berkeley Keep Jets Over the Bay Com. v. Bd. of Port Commrs.* (2001) 91 Cal.App.4th 1344, 1367.)

Commission Staff did not adequately analyze signficcant impacts because Staff did not conduct any subsurface testing for buried resources or obtain input from the Tribes through an ethnographic study or oral interviews for ethnographic resources.

c. Cumulative Impacts to Cultural Landscape

When significant impacts to cultural resources from this Project and other past, present and reasonably foreseeable future projects are considered cumulatively, the Project would contribute to the potential destruction of a significant cultural landscape that has not been identified or discussed by Staff.

Bridget Nash explained the Project's significant cumulative impacts to the cultural landscape in her testimony:

> There is no substantive quantification or detailed analysis of how these [other proposed projects in proximity] in conjunction with the Imperial Valley Solar Project are expected to impact the cultural resources of the surrounding area or the broader California desert conservation area… In fact, there are trails that are located within the project area that trend south… Some of them start trending towards the southwest over to another project area, which also contains a large number of cremations where the Schneider Dance Circle is, and some of the geoglyphs, some of the intaglios… whatever happens within this project area is going to affect the Yuha Desert towards the south…. (August 16, 2010, Tr. pp. 108-110.)

Ms. Nash concluded, that the projects must be considered together to assess the cumulative impacts on the cultural landscape.

Carmen Lucas, a Kwaaymii Indian also shared concerns about the cumulative impacts on the landscape in the Project region:

> MS. LUCAS: I work as a Native American monitor, I see what goes on in the southern area here, and I've very, very concerned with the overall picture, both here, as well as these power lines, and windmills, and geothermals travel up the mountains and through the grades, I wonder what we're offering to the future generations. (Hearing 5/24/2010 Tr. p. 299.)

Despite the impending destruction of this nonrenewable cultural landscape, Staff did not adequately analyze or mitigate the Project's direct and cumulative significant impacts to cultural resources.

III. BLM'S SECTION 106 CONSULTATION IS NOT A SUBSTITUTE FOR STAFF'S CEQA ANALYSIS OF SIGNIFICANT IMPACTS TO ETHNOGRAPHIC RESOURCES

Staff admittedly has not completed its analysis of the Project's potentially significant impacts to ethnographic resources. (Hearing 8/16/2010 Tr. p. 48.) Staff suggests that BLM's National Historic Preservation Act ("NHPA") section 106 consultation process will substitute for Staff's CEQA analysis. "One of the purposes of the Programmatic Agreement (PA) is to identify the analytical processes that will be used to determine the significance of cultural resources and ensure appropriate mitigation for any impacts to those resources." (Exh. 307, p. C.3-107.) ***This is wrong***.

There are four reasons why Staff must analyze the Project's potentially significant impacts to ethnographic resources now rather than after Project approval, as proposed in BLM's PA.

First, as lead agency under CEQA, the Commission must independently review and analyze a project's potential adverse environmental impacts and include its independent judgment in an environmental review document. (Pub. Res. Code § 21082.1(c); *Plastic Pipe and Fittings Assn. v. California Building Standards Comm'n* (2004) 124 Cal.App.4th 1390.) CEQA Guidelines specifically require a lead agency to subject information submitted by others to the lead agency's own review and analysis before using that information in an environmental review document. (14 Cal. Code Regs. § 15084(e).) Furthermore, when certifying an environmental review document, the lead agency must make a specific finding that the document reflects its independent judgment. (Pub. Res. Code § 21082.1(c).)

Second, the Commission's regulations require the Commission Staff to "present the results of its environmental assessments in a report" which "shall be written to inform interested persons and the commission of the environmental consequences of the proposal." (20 Cal. Code Regs. § 1742.5(b) and (c).) The regulations require "a complete consideration of significant environmental issues in

the proceeding." (*Id.* at § 1742.5(d).) The Energy Commission's regulations also require the Commission to base its decisions only on evidence in its record. (*Id.* at § 1751(a).) As a result, the Commission cannot merely rely on an analysis of the significance of impacts or the efficacy of mitigation that will be conducted in the future by the BLM. It must make its own determination now based on evidence in its own record.

Third, site significance (and hence the potential for significant adverse impacts) is defined differently under CEQA than the NHPA. The identification and analysis of significant impacts is more stringent under CEQA than under the NHPA. Specifically, sites are significant under the NHPA if they are determined to be eligible for listing on the National Register of Historic Places ("NRHP"). (36 C.F.R. § 800.5.) NRHP eligible sites are also significant under CEQA. However, under CEQA, sites are also significant if they are listed in any historical registry. (14 Cal. Code Regs. § 15064.5(a).) Thus, the potential for significant adverse impacts, the need to design mitigation measures and the obligation to determine the effectiveness of mitigation is greater under CEQA. Unless the Commission conducts an independent analysis of significant impacts pursuant to CEQA, the Commission cannot "ensure a complete assessment of significant environmental issues," as required by the Commission's regulations. (20 Cal. Code Regs., § 1742.) Further, the Commission's decision will not be supported by substantial evidence in the record.

Finally, BLM's section 106 consultation process is not a substitute for Staff's CEQA analysis. CEQA and the Commission's own regulations require Staff to analyze the Project's impacts to ethnographic resources. Staff admittedly did not conduct the required analysis and did not provide a valid reason why it failed to do so.

Staff did not attend most of the meetings where tribal members came and spoke out about their concerns with the development of the PA. (Hearing 8/16/2010 Tr. p. 155.) Staff should have consulted with Native Americans who have expressed concerns about the Project's impacts on cultural resources and who have been willing to consult with Staff. (Exh. 498-Y.)

BLM's section 106 process is not an open process and does not meet CEQA's public disclosure requirements. In *Laurel Heights Improvement Assn. v. Regents of University of California* (1993) 6 Cal.4th 1112), the California Supreme Court explained in detail the purposes and framework of the CEQA review process:

> We have repeatedly recognized that the EIR is the 'heart of CEQA.' Its purpose is to inform the public and its responsible officials of the environmental consequences of their decisions before they are made. Thus, the EIR protects not only the environment but also informed

> self-government. To this end, public participation is an essential part of the CEQA process.

An EIR's role as an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached the ecological points of no return… (*County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810.) "When the informational requirements of CEQA are not complied with, an agency has failed to proceed in 'a manner required by law.'" (*Save Our Peninsula Committee v. Monterey County Bd. Of Supervisors* (2001) 87 Cal.App.4th 99, 118.) If the deficiencies in an EIR preclude informed decision making and public participation, the goals of CEQA are thwarted and a prejudicial abuse of discretion has occurred. (Id. at p. 128.)

On the other hand, BLM, in consultation with other agencies, can determine who is allowed to participate in its processes of preparing a PA:

> Certain individuals and organizations with a demonstrated interest in the undertaking may participate as consulting parties due to the nature of their legal or economic relation to the undertaking or affected properties, or their concern with the undertaking's effects on historic properties. (36 CFR Sec. 800.2)

Energy Commission Staff archeologist Mike McGuirt had to admit that the 106 process is not open to all:

> MS. MILES: But it's definitely not a process whereby anyone in the public would be guaranteed an opportunity to participate.
>
> MR. McGUIRT: That's a fair statement.
> (Hearing 8/16/2010 Tr. p. 61.)

It is a bald violation of CEQA to defer the entire environmental review process – from the identification of the baseline environment to the evaluation of significant impacts to the formulation of mitigation measures – until after the Energy Commission approves the Project. Furthermore, to defer the identification of impacts and development of mitigation to a different BLM process where members of the public would have to apply and demonstrate an interest before they would be allowed to participate, offends the fundamental public participation requirements woven throughout the fabric of CEQA.

IV. STAFF DID NOT ADEQUATELY MITIGATE SIGNIFICANT IMPACTS

CEQA requires the Commission to formulate mitigation measures sufficient to minimize the Project's significant adverse environmental impacts. (Pub. Res. Code, §§ 21002.1(a), 21100(b)(3).) Mitigation measures must be designed to minimize, reduce, or avoid an identified environmental impact or to rectify or compensate for that impact. (14 Cal. Code Regs., § 15370.) A public agency may not rely on mitigation measures of uncertain efficacy or feasibility. (*Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 727.)

CEQA's preference for avoidance of significant cultural resources was not proffered without reason. "Preservation in place is the preferred manner of mitigating impacts to archaeological sites" because "[p]reservation in place maintains the relationship between artifacts and the archaeological context" and "[p]reservation may also avoid conflict with religious or cultural values of groups associated with the site." (14 Cal. Code Regs. § 15126.4(b)(3)(A).)

Staff proposes to mitigate significant impacts through the imposition of a **single** condition of certification, the execution of a programmatic agreement ("PA").

> CUL-1 The applicant shall be bound to abide, in total, to the terms of the programmatic agreement that the BLM *is to* execute under 36 CFR § 800.14(b)(3) for the proposed action. If for any reason, any party to the programmatic agreement were to terminate that document and it were to have no further force or effect for the purpose of compliance with Section 106 of the National Historic Preservation Act, the applicant would continue to be bound to the terms of that original agreement for the purpose of compliance with CEQA until such time as a successor agreement had been negotiated and executed with the participation and approval of Energy Commission staff.

(Exh. 307, pp. C.3-158 and159.)

The PA lays out a process by which the BLM will make decisions about the Project construction and mitigation after "taking into account" the views of other parties. The PA ***does not detail specific mitigation*** but requires that treatment plans will be developed to mitigate impacts that have been or will be identified in the future. The PA includes an appendix that provides suggestions for the formulation of mitigation in the future.

Appendix B: "Historic Properties Treatment Plan(s)" requires the Applicant to supply a list of historic properties that will be avoided. However, there is nothing explaining any category or types of properties that ***must be*** avoided or how much

buffer space must be available to avoid them. In other words, recommendations are made to avoid certain resources, but these recommendations have no teeth. They are unenforceable.

The "Plan" requires the Applicant to describe the measures to avoid, minimize or mitigate the adverse effects on historic properties. What was supposed to be a consultation process now falls squarely to the responsibility of the Applicant – to list all the sites to be avoided and every measure that will be taken by the Applicant to minimize or mitigate the adverse effects.

The "Plan" then provides a list of mitigation for adverse effects beyond data recovery:

> (1) Placement of construction within portions of historic properties that do not contribute to the qualities that make the resource eligible
>
> (2) Deeding cemetery areas into open-space in perpetuity and providing the necessary long-term protection measures
>
> (3) Public interpretation including the preparation of a public version of the cultural resources studies and/or education materials for local schools
>
> (4) Access by tribes to traditional areas in property after the project has been constructed
>
> (5) Support by Applicant to cultural centers in the preparation of interpretive displays
>
> (6) Consideration of other off-site mitigation

The first of these mitigation options, "construction within the boundary of a historic property in an area that doesn't contribute to the defining characteristics" does not constitute mitigation. This provision simply allows construction within the boundaries of a historic property, which, in all likelihood, would render the historic property ineligible post-construction.

The second, deeding a cemetery to open space, does not apply to this Project because the Project would be built on BLM land and cannot be deeded or protected in perpetuity.

Provision (4), access by tribes to traditional areas, is not mitigation because it is required under the American Indian Religious Freedom Act and Executive Order 13007.

The remaining three points, (3) a public version of the report, (5) interpretive displays, and (6) off-site mitigation, do little to reduce the significant impacts on the Project site and, in any event, do not appear to ever be specifically required.

The plan purports to satisfy CEQA by including specific types of resources that are required to be avoided, with the caveat that the avoidance is only required "where feasible" or "where achievable" and there is no criteria defined for what is feasible or achievable. One can only speculate that the limits of feasibility and achievability would be dictated by the Applicant's engineers who are actively seeking to finalize the Project design. (Hearing 8/16/2010 Tr. p. 51.) This type of negotiation should occur in the public view, when Project approval still hangs in the balance and can be calculated into the Applicant's decision whether avoidance is achievable.

This treatment plan menu does not include anything that constitutes enforceable mitigation. Thus, the "mitigation" in the PA is of uncertain efficacy. In effect, there is no mitigation to which the Applicant would be bound if the PA were terminated.

> MS. MILES: Is it true that the mitigation is in the PA, or is it that there are directions to develop mitigation through future plans?
>
> MS. NISSLEY: …the answer is no, there aren't any mitigation developments in the text of the PA, they're all -- they're simply stipulations that say the mitigation plans will be developed at some point in the future.
>
> MS. MILES: So if you have a signed PA, that is not sufficient to hold the applicant to specific provisions of mitigation because the mitigation plan hasn't been completed; is that correct?
>
> MS. NISSLEY: That is correct. (Hearing 8/16/2010 Tr. p. 172.)

This mitigation strategy – to defer the formulation of mitigation until after Project approval – also constrains what mitigation is feasible. Once the Project layout has been finalized, it will be very difficult or impossible to require that the Applicant avoid a significant resource, although avoidance is the preferred mitigation for archeological nonrenewable resources under CEQA. Staff does not dispute this:

> MR. McGUIRT: The further they are, the further the applicant is along in the design process, and it narrows down the further in time you get, the less options there are to introduce major changes into the

> design of the project. And that's just a function of where we are. And so you know, in theory -- and I'm not sure that this happens terribly often under any circumstances -- if you had all of your cultural resources information in hand before you put pencil to paper to design your project at all, in theory you could design an avoidance plan where you physically avoided all these resources. And the further we get along in the process, that constrains your ability to do that.

(Hearing 8/16/2010 Tr. p. 51.)

Thus, the SSA defers the formulation of mitigation to the PA that will potentially be finalized and executed after the Commission approves the Project. The PA defers the formulation of mitigation to the Treatment Plan that will be developed after the Project has been approved. This double deferral is wholly prohibited under CEQA.

Courts have held that deferral of the formulation of specific mitigation complies with CEQA if "the lead agency: (1) undertook a complete analysis of the significance of the environmental impact, (2) proposed potential mitigation measures early in the planning process, and (3) articulated specific performance criteria that would ensure that adequate mitigation measures were eventually implemented." *Communities for a Better Environment v. City of Richmond*, (2010) 184 Cal.App.4th 70.

Here the Energy Commission failed to evaluate the significance of the resources, did not complete the studies and testing necessary to determine the baseline, explained that mitigation will be constrained after Project approval, did not include any triggers that would require avoidance of certain types of resources and created no objective criteria for measuring success."[1] For these reasons, the PA is not adequate mitigation under CEQA.

V. THE COMMISSION CANNOT MAKE A FINDING OF OVERRIDING CONSIDERATIONS WITHOUT AN ADEQUATE IMPACT ANALYSIS

The Commission cannot make a finding of overriding considerations unless and until each of the Project's significant impacts has been disclosed and analyzed, and until the Commission has required all feasible mitigation, including avoidance. (*San Bernardino Valley Audubon Society, Inc. v. County of San Bernardino* (1984) 155 Cal.App.3d 738; *Woodward Park Homeowners Association, Inc. v. City of Fresno* (2007) 160 Cal.App.4th 683.)

[1] *Id.*

"There is a sort of grand design in CEQA: Projects which significantly affect the environment *can* go forward, but only after the elected decision makers have their noses rubbed in those environmental effects, and vote to go forward anyway." (*Vedanta Society of So. California v. California Quartet, Ltd.* (2000) 84 Cal.App.4th 517, 530 (emphasis in original).) An EIR that fails to adequately inform decision makers presents an unsound basis for a statement of overriding considerations and exposes the lead agency to legal challenge under CEQA. (*See San Bernardino Valley Audubon Society, Inc, supra,* 155 Cal.App.3d 738 (statement invalidated for the same reasons that EIR was found invalid); *Woodward Park Homeowners Association, Inc., supra,* 160 Cal.App.4th 683.)

As discussed above, Staff completely failed to analyze the Project's significant impacts to ethnographic and buried cultural resources. Consequently, Staff failed to adequately inform the Commission of the Project's environmental impacts. In other words, the Commission has not had "their noses rubbed in" the Project's environmental effects. Therefore, an override finding by the Commission would be premature at this point.

Further, a statement of overriding considerations cannot mislead the reader "about the relative magnitude of the impacts and benefits the agency has considered." (*Woodward Park Homeowners Association, Inc. v. City of Fresno* (2007) 160 Cal. App.4th 683, 718.) Because Staff failed to adequately analyze the Project's impacts to cultural resources, a statement of overriding considerations based on Staff's analysis would not fairly portray the Project's impacts. Because it would otherwise mislead the public, the Commission cannot proceed with an override finding until the Project's significant impacts are adequately disclosed and analyzed.

The Commission cannot go forward with an override of the Project's significant impacts to cultural resources until it has dealt with each and every significant impact to cultural resources. The Commission has not met this burden.

VI. CONCLUSION

The Commission's approval of the Project, as proposed, would contribute to the loss of a wholly unknown number of buried archeological resources, an unidentified number of ethnographic resources and an area that currently represents a critical piece of a cultural landscape that is significant to tribes in the region. As lead agency under CEQA, the Commission has been entrusted with the duty to identify, analyze and mitigate the Project's significant impacts to irreplaceable cultural resources. Importantly, the Commission's duty includes consideration of the sacredness to Native Americans that these resources may hold,

prior to deciding on whether to approve the Project. Thus, pursuant to CEQA, the Commission cannot approve the Project as proposed.

Dated: August 20, 2010 Respectfully Submitted,

_____/s/_____

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STATE OF CALIFORNIA
California Energy Commission

In the Matter of: The Application for Certification for the Imperial Valley Solar Project (formerly known as SES Solar Two)	Docket No. 08-AFC-5

PROOF OF SERVICE

I, Bonnie Heeley, declare that on August 20, 2010, I served and filed copies of the attached **OPENING BRIEF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY ON CULTURAL RESOURCES.** 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 http://www.energy.ca.gov/sitingcases/solartwo/Imperial_Valley_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 via email and by U.S. Mail with first-class postage thereon, fully prepaid and addressed as provided on the Proof of Service list to those addresses NOT marked "email preferred." An original paper copy and one electronic copy, mailed and emailed respectively, were sent to the Docket Office.

I declare under penalty of perjury that the foregoing is true and correct. Executed at South San Francisco, CA on August 20, 2010.

_____/s/_____
Bonnie Heeley

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